Significant Changes 2004 Specifications

SPECIFICATIONS, GENERAL

For instruction to the Contractor, the specifications have been written in active voice, imperative mood. Article 2.1, "Introduction," addresses this change and states "Instructions to the Contractor in these specifications are generally written in active voice, imperative mood. The subject of imperative sentences is understood to be “the Contractor.” The Department’s responsibilities are generally written in passive voice, indicative mood. Phrases such as “as approved,” “unless approved,” “upon approval,” “as directed,” “as verified,” “as ordered,” and “as determined” refer to actions of the Engineer unless otherwise stated, and it is understood that the directions, orders, or instructions to which they relate are within the limitations of and authorized by the Contract."

ITEMS 1-9, GENERAL REQUIREMENTS AND COVENANTS

Item 1, “Definition of Terms”

1. Added the definition for “Anticipated Profit.” This definition specifies anticipated profit is profit for work not performed. Provides additional clarity.
2. Added the definition for “Callout Work.” This definition addresses work items in Contracts that require a Contractor’s response on an as needed basis. Provides additional clarity.
3. Added the definition for “Multiple Work Order Contracts.” This definition addresses contracts with recurring maintenance work or non-site-specific work. Provides additional clarity.
4. Added the definition for “Non-site-specific Contracts.” This definition addresses Contracts in which a geographic region is specified for the work and for which work orders, with or without plans, further detail the limits and work to be performed. Provides additional clarity.
5. Added the definition for “Recurring Maintenance Work Contracts.” The definition addresses Contracts or work for which maintenance is needed at the same location on more than one occasion (e.g. mowing Contracts for which mowing cycles are requested on multiple occasions). Provides additional clarity.
6. Added the definition for “Subcontractor.” This definition will exclude subsidiaries that are wholly owned by the Contractor. This addition provides clarity and uniformity regarding the identification of a subcontractor and excludes subsidiary entities that are wholly owned by and operate dependently upon the Contractor.
7. Added the definition for “Written Notice.” This definition addresses how written notice is considered to have been duly given. Provides additional clarity.

Item 2, “Instructions to Bidders”

1. Added new Article 2.1, “Introduction” to explain how the new language used to create the new spec book is interpreted.
2. Did not incorporate Article 2.1 Special Provision relating to contents of proposal forms. No value added.
3. Incorporated current special provisions relating to Item 2, which became Article 2.3, “Issuing Proposal Form.” Current special provision.
4. Revised Article 2.45, “Examining Documents and Work Location,” to include the provision that the traffic control plan cannot be revised prior to contract award. This revision protects the integrity of the competitive bid process by ensuring that all bidders are bidding on the project as originally designed.
5. Moved Articles 2.6, “Rejection of Proposals,” and 2.12, “Disqualification of Bidder,” to 2.7, “Nonresponsive Proposals” to clarify the term rejection that is applied to actions of the commission regarding proposals or bids. The term “nonresponsive” was determined to be more appropriate. Additional reasons for bids being “nonresponsive” previously included in Special Provisions were added.

6. Included “Buy America” provisions in Article 2.6, “Preparing the Proposal,” and Article 2.14, “Tabulating Bids.” Incorporated current requirements from Special Provisions 002-002 and 003-018.
7. Moved from Article 3.1, “Consideration of Bids.” Became the new Article 2.14, “Tabulation of Bids” to consolidate bidding related specifications into Item 2. Item 3 has been designated for contract award issues. Item updated to address issues such as alternates and incomplete bids.
8. Added Article 2.15, “Consideration of Bid Errors.” Incorporates policy change and current Special Provisions.
9. Added a new Article 2.16, “Tie Bids.” Provided specification to support departmental procedure.

Item 3, “Award and Execution of Contract”

1. Revised Article 3.1, “Award of Contract,” to include provisions for award to second bidder, reasons for rejection, and award deferral. Incorporates requirements presently contained in special provisions.
2. Added a new Article 3.2, “Rescinding of Award,” to allow the commission to cancel the award of any contract before contract execution with no compensation due when the cancellation is in the best interest of the state. Basis: Provides additional clarity in conjunction with new policy.
3. Added Article 3.3, “Disadvantaged Business Enterprise (DBE)/Small Business Enterprise (SBE)**.** Incorporates requirements into Item 3 currently contained in special provisions.
4. Article 3.8, “Beginning of Work,” is revised to provide that separate work orders will be issued for multiple project locations. Provides better clarification and instruction to the Contractor and incorporates the requirements of current Special Provision 003-056.
5. Incorporated SP#, **Article 7.22, “Excluded Parties,”** which states the following: The Contractor certifies by signing this contract, the Contractor will not enter into any subcontract with a subcontractor that is debarred or suspended by any federal agency. Became the new Article 3.9, “Excluded Parties.” Article 7.22, “Excluded Parties,” pertains to “Award and Execution” and was moved to Article 3.10.

Item 4, “ Scope of Work”

1. For routine maintenance contracts only, Article 4.2, “Changes in the Work” is amended to include factors to be applied to unit item prices in the event of a 25% or greater underrun in project quantities where an adjusted unit price cannot be agreed upon. This revision provides for inclusion of the requirements currently located in Special Provisions 004-014 and 004-016, and provides uniformity in pricing for quantity underruns that are greater than 25% in those instances where an adjusted unit price cannot be agreed upon.
2. Article 4.2, “Changes in the Work,” is amended to allow for use of force account or interim adjustmentsThis revision provides for inclusion of the requirements currently located in Special Provisions 004-014 and 004-016, and provides uniformity in
3. A new Article 4.3, “Differing Site Conditions,” has been added. This topic was previously covered in Article 9.7. Differing site conditions and the handling thereof pertain primarily to the scope of the work, not measurement and payment. This revision therefore provides for better organization and categorization of this topic.
4. Article 4.4.A.2, “Project Overhead” is added to allow for compensation of project overhead as delay damages. Project overhead is determined from actual, documented costs incurred by the Contractor. New Section 4.4.A.3., “Home Office Overhead,” provides that home office overhead will not be compensated to the Contractor by the Department. This revision provides needed clarification and uniformity related to the reimbursement of Contractor overhead.

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Item 5, "Control of the Work"

1. The table outlining signature and approval requirements contained in Article 5.2, "Plans and Working Drawings," is revised to include contractor proposed major modifications to the traffic control plan. Provides better clarification regarding Contractor's responsibilities with regard to plans and working drawings.
2. Article 5.4, "Coordination of Plans, Specifications, and Special Provisions," is amended by clarifying that plans include general notes. In addition, revision is made to require that job specific plans control over standards when in conflict. This revision incorporates requirements located in current Special Provision 005-027 and provides better clarity regarding the governing rankings of plans, specifications and special provisions in cases of disagreement.
3. Article 5.4, "Coordination of Plans, Specifications, and Special Provisions," is amended by stating that when there is conflict between the plans and specifications in regard to traffic control and hazardous material responsibilities, the specifications govern over the plans (includes general notes).
4. Article 5.5, "Cooperation of Contractor," is amended to include requirements that the Contractor cooperate with Utilities, other Contractors and Railroads. This revision incorporates the requirements of current Special Provisions 008-002, 008-003, 008-004, and 008-009.
5. Added Section 5.6.C, "Method C." Surveying is the responsibility of the Contractor.
6. Addressed acceptance of routine maintenance Contracts in Article 5.8.A.
7. Added Section 5.8.B, "Construction Contracts is revised to stipulate that final acceptance is made when all work is completed and accepted at all work locations. Section 5.8.B.1, "Work Completed," stipulates that work completed includes work for vegetative establishment and maintenance, test, and performance periods. Section 5.8.B.2, "Final Inspection," stipulates that all deficiencies in the work requiring corrections will be identified after the final inspection. To provide additional clarification regarding deficiencies at the conclusion of the work.
8. Added Section 5.8.C, "Multiple Work Order Contracts." To provide Contracts with multiple work orders.

Item 6, "Control of Materials"

1. Created a new Article 6.9, "Recycled Materials." Incorporates current requirements of Special Provision 006-018.
2. A new Article 6.13, "Surplus Materials," is added. This was created and added to Item 6 in order to limit the Contractor's exposure and hold the Contractor responsible for the disposition of any surplus items or materials.

Item 7, "Legal Relations and Responsibilities"

1. Title changed from "Legal Relations and Responsibilities to the Public."
2. Renamed Article 7.4 from "Insurance" to "Insurance and Bonds" and added a new last paragraph requiring that, in the event of a Surety being declared bankrupt or insolvent, work will be suspended until a substitute Surety is provided. This was added to Item 7 in order to protect the interests of the department in those instances where a Surety company is no longer a viable entity. This added protection is necessary due to the increasing number of Surety companies being declared bankrupt or insolvent in recent months.
3. Article 7.12, "Responsibility for Damage Claims," is amended by adding a new last paragraph stating that any Contractor who brings any type of legal action against any Commissioner or individual employee of the Department will be ineligible to bid with the Department pending outcome of the legal action. This revision incorporates requirements located in current Special Provision 007-784.
4. Article 7.14, "Contractor's Responsibility for the Work," revised by adding new subsections A, "Reimbursable Repair," B, "Appurtenances," C, "Roadways and

Structures," D, "Detours", E, "Relief from Maintenance," and F, "Basis of Payment." Provides detailed explanation of reimbursable and unreimbursable costs. Relief from maintenance does not constitute final acceptance and includes provision for isolated work locations and work locations with vegetative establishment and maintenance periods and test and performance periods, and work suspension.

5. "Preservation of Cultural Resources" moved and renamed to Article 7.18, "Preservation of Natural Resources and the Environment." New Subarticles B., "National Pollution Discharge Elimination (NPDES) Permits and Storm Water Pollution Prevention Plans (SW3P)," and F., "Project Specific Locations," added to Article 7.18. This revision incorporates existing Special Provision 007-784. The resource list presently contained in Special Provision 007-784 will be located on the department's Internet site.

Item 8, "Prosecution and Progress"

1. "Computation of Contract Time for Completion" is moved from Article 8.5 to Article 8.3 and revised to include Subarticles A.1, "Five-Day Workweek," A.2, "Six-Day Workweek,"A.3, "Seven-Day Workweek," A.4,. "Standard Workweek," A.5, "Calendar Day," and A.6, "Other." Incorporates requirements currently contained in multiple one-time use Special Provisions. This revision will also provide clarification and uniformity regarding the calculation of contract time. When preparing the PS&E, either the Five-Day, Six-Day, Seven-Day, Standard Workweek or Other for the computation of contract time must be designated.
2. Added Section 8.3.B, "Restricted Work Hours." Provided additional clarity.
3. Added Section 8.3.C, "Nighttime Work." Incorporated requirements presently contained in Special Provision.
4. Section 8.3.D, "Time Statements," revised to provide a method whereby the Contractor has 30 days to review the monthly time statements. Provides clarity.
5. Added ability to suspend time and work on days before or after a holiday to Article 8.4, "Temporary Suspension of Work or Working Day Charges." Provided specification to support Departmental procedure.
6. Moved and revised "Abandonment of Work or Default of Contract" from Article 8.7 to Article 8.6 and added sanctions for Contractors that default on Contracts. Added methods for completion for contracts with performance bonds or without performance bonds, and provided the suspension of the requirement that 30% of the work be done by the Contractor in the event of default. This revision incorporates the Department's new sanction rules and other procedures related to sanctions.
7. Moved and revised "Subcontracting" from Section 8.1.2, to Article 8.8 and included provisions for the use of labor leasing firms. This revision incorporates revised Federal interpretation of the 30% subcontracting limitation contained in Form FHWA-1273. Certified labor leasing firms are no longer considered to be subcontractors. In addition, with the revision of the definition of Contractor contained in Item 1, subsidiary firms that are wholly owned by the Contractor are not considered as subcontractors.
8. Added a new Section 8.7.B, "Settlement Provisions," decreasing the time for submitting the settlement proposal from 180 calendar days to 60 calendar days and mobilization is now based upon the percentage of work completed. Provides clarity.

Item 9, "Measurement and Payment"

1. Article 9.1, "Measurement of Quantities," is revised to include all references associated with the measurement and payment of divisible materials previously located at Article 6.12, "Hauling Material." This revision provides for better organization with regard to the Contractor's responsibilities concerning the hauling of material, and the Department's method of measurement and payment of same.
2. Article 9.2, "Plans Quantity Measurement" clarifies that the basis for requiring a plans quantity adjustment is the "individual Item." Language that allowed for adjustments based on a designated element has been deleted.

3. Article 9.2, “Plans Quantity Measurement” clarifies that changes made by change order and adjustments for plan errors establishes a new plans quantity.
4. Article 9.2, “Plans Quantity Measurement” adds language to exempt callout and non-site specific work from plans quantity requirements.
5. Article 9.4, “Force Account,” moved to Article 9.5 and revised to include an additional 5% compensation as administrative costs associated with subcontracting and off-duty law enforcement, and an additional 1% compensation for costs associated with increased bonding requirements. In addition, the maximum amount associated with payment of the force account work by certified correct invoice is increased from $5,000 to $10,000. The requirements contained in Special Provision 009-062 associated with administrative costs related to subcontracting are incorporated. The revision associated with the 1% compensation associated with increased bonding requirements is added in recognition of actual reimbursable costs incurred by the Contractor, while the increase from $5,000 to $10,000 for payment by certified correct invoice is reflective of inflation.
6. Article 9.5, “Partial Payments,” is divided into two new Articles: Article 9.6, “Progress Payments,” and Article 9.7, “Payment for Material on Hand.” Revisions also include the retainage percentage of 4% for projects involving the use of NRMs; partial release of retainage for projects involving separate vegetative establishment, maintenance or performance periods; and requirement that Subcontractors be paid within 10 days of the Contractor receiving payment. Also added the requirement that subcontractors provide written, detailed information related to non-payment prior to the department addressing the issue. Requirements for MOH payments is revised to remove the requirement that Contractors submit paid invoices within 60 days or two estimate cycles, whichever is less. These revisions incorporate requirements presently contained in Special Provisions 009-028, 009-050, and 009-062. The requirement that subcontractors provide information related to non-payment is added in order to ensure that only viable complaints are investigated. Removal of the paid invoice requirement for MOH payments is removed as the certification requirement contained in the MOH payment request is sufficient. Language presently contained in Item 9 allows the department to audit the Contractor’s MOH records.

Bid Item Changes

General

1. Specifications that previously had Class measurement description for Items with cubic yard measurement will now have, as an example

   - CY Original – Measured in the original position.
   - CY Vehicle – To be measured in the vehicle.
   - CY Final – To be measured in the final position.

2. The specifications have standard outlines as follows:

   Article xxx.1 Description
   Article xxx.2 Materials
   Article xxx.3 Equipment
   Section A.
   Section 1.
   Section a.
   Section (1)
   Section (a)
   Article xxx.4 Construction (Work methods for maintenance type Items)
   Article xxx.5 Measurement
   Article xxx.6 Payment

Significant Changes 2004 Specifications

100 ITEMS, EARTH WORK AND LANDSCAPE

Item 100, "Preparing Right of Way"

1. Removed reference to removal of palm trees.

Item 103, "Disposal of Wells"

1. No significant changes.

Item 104, "Removing Concrete"

1. No significant changes.

Item 105, "Removing Stabilized Base and Asphalt Pavement"

1. Title changed from "Removing Stabilized Base and/or Asphaltic Pavement"
2. Changed from a Plans Quantity Item to measuring the quantities in original position with typical sections on plans for width and depth. Length will be measured in the field.

Item 106, "Obliterating Abandoned Road"

1. No significant changes.

Item 110, "Excavation"

1. No significant changes.

Item 112, "Subgrade Widening"

1. No significant changes.

Item 132, "Embankment"

1. Defined a moisture content range for density control in Table 2.
2. Changed the measurement method by eliminating the classes and measuring in CY for final position, original position and in vehicle delivered.

Item 134, "Backfilling Pavement Edges"

1. No significant changes.

Item 150, "Blading"

1. No significant changes.

Item 152, "Road Grader Work"

2. No significant changes.

Item 154, "Scraper Work"

1. No significant changes.

Item 156, "Bulldozer Work"

1. No significant changes.

Item 158, "Specialized Excavation Work"

1. In addition to measurement by the hour of work performed for specified equipment or by the cubic yard in its original position, this Item added another type of measurement, by the cubic yard in vehicles at the point of excavation.

Item 160, "Topsoil"

1. Title changed from "Furnishing and Placing Topsoil."

2. Removed the section on “Sources”, but added it to “Materials.”
3. Added the requirement that topsoil obtained off the ROW have a pH of 5.5 to 8.5.
4. Added the requirement to cultivate the area to a depth of 4 in. before placing topsoil.
5. Removed all classes of Measurement.
6. Made changes to the figure to clarify measurement related to excavation and embankment.

Item 161, “Compost”

1. This is a New Item customized after special specification 1027.
2. Acceptable compost must meet the requirements of the US Composting Council (USCC) Seal of Testing Assurance program.
3. The specification no longer references ASTM test methods. Instead, it references the USCC "Test Methods for the Examination of Composting and Compost".
4. Instead of different physical requirements for each of the 3 categories of compost covered by this specification, (Compost Manufactured Topsoil, Erosion Control Compost and General Use Compost), all compost must meet the same physical requirements.
5. The specification no longer references a sometimes inaccurate field test to determine maturity. Rather, the specification references specific QCQA controls.
6. The specification eliminates the need for further clarification in the general notes by specifically defining:
   - the ratio of topsoil to compost for Compost Manufactured Topsoil.
   - the depth of Erosion Control Compost.
   - the size of the wood chips in Erosion Control Compost.
7. Clarified responsibility for topsoil for CMT-BOS.

Item 162, “Sodding for Erosion Control”

1. Crimping methods are now permissible.
2. Spot sodding is restricted to bermuda grass.
3. Cultivation prior to placing sod is now required.
4. The grass retard option was eliminated.

Item 164, “Seeding for Erosion Control”

1. Require the split application of fertilizer when utilizing “Temporary Seeding and “Permanent Seeding”.
2. Removed “Legume Seeding” from spec due to non-use.
3. Require seedbed prep by either mowing or cultivating when performing “Permanent Seeding” through an established “Temporary Seeding”.
4. Changed seed rates in Table 1.

Item 166, “Fertilizer”

1. Requires the use of a formulation in which the nitrogen (N) is at least 50% slow release.
2. Provides for measurement by the acre of surface area covered or by the ton.

Item 168, “Vegetative Watering”

1. No significant changes.

Item 169, “Soil Retention Blankets”

1. No significant changes, except title changed from “Soil Retention Blanket.”

Item 170, “Irrigation System”

1. Changed license requirements from Texas Board of Irrigators to Texas Natural Resource Conservation Commission (TNRCC).
2. Eliminated requirement that licensed irrigator must be on site at all times.

3. Added electrical work is to be done under the supervision of a licensed electrician in accordance with Article 8.3.
4. Added minimum requirements for low voltage electrical wire (14guage) to Materials section and Construction section.
5. Added requirements for Electrical Service for installation requiring over 100 volts to the Materials section, the Construction section, and the Payment section. Under payment "Electrical Service" will be measured and paid for under Item 628, "Electrical Services."
6. Required all pipe buried in trenches to have a minimum of 12 in. cover instead of 18 in. (Texas industry recommends 12 in.)
7. Required all pipe located within encasements to have a minimum of 12 in. cover rather than 18 in. cover under sidewalks, non-load bearing slabs, or other in unpaved areas.
8. Hydrostatic testing pressure was reduced from 100 psi minimum to 80 psi minimum.
9. Hydrostatic testing - Reduced requirement to maintain lines under static pressure for 48 hours with no leaks to 24 hours with no leaks for final approval.

Item 180, "Wildflower Seeding"

1. Deleted requirement to test seed twice and provided for testing of seed once.
2. Eliminated requirement for use of "pneumatic-tire" equipment only on the right-of-way.
3. Eliminated prohibition of "hydro-seeding" as a technique to sow the wildflower seed.

Item 192, "Landscape Planting"

1. Item title changed from "Roadside Planting and Establishment".
2. Definitions for containerized, container-grown, balled and burlapped, bare root, collected, and bag grown stock have been eliminated since the latest version of "American Standard for Nursery Stock" (approved 11/6/96), which is a reference standard for this specification, includes these definitions. The "Landscape Inspection Guide", which we are making available on line, also includes these requirements and therefore will be available for TxDOT personnel.
3. Plant size and measurement requirements have been eliminated because this information is included in the "American Standard for Nursery Stock" and any exception can be addressed on the plans. TxDOT personnel will be able to reference the "Landscape Inspection Guide".
4. Nursery plant containers, Table 1A and 1B, have been eliminated because this information is included in the "American Standard for Nursery Stock." TxDOT personnel will be able to reference the "Landscape Inspection Guide".
5. The Planting Seasons, Table 2, has been eliminated because this is a timing issue that is very difficult to control by the contractor or the department. A better answer is to let the designer determine the root condition for each plant in the PS&E.
6. Added a method to measure and pay for mulch, plant soil mix, landscape edge, plant bed preparation, and vegetation barrier.
7. Added a means to the Payment Article to hold the contractor accountable for the maintenance work or forfeit partial payment.

Item 193, "Landscape Establishment"

1. Title changed from "Landscape Maintenance". "Landscape Maintenance" is not Item 751.
2. Location for maintenance must be shown on the plans. It is not "directed by the Engineer."
3. When "Plant Maintenance" is measured by the month, the Contractor is required to inspect the site and perform required maintenance at least every 2 weeks.
4. Documentation of required licenses must be furnished to the Engineer. It is currently at the option of the Engineer.
5. ANSI A300 has become the standard for pruning.

6. Treatment of tree wounds (all Oaks) within 20 minutes is required to guard against the spread of oak wilt disease.
7. Winterization of the irrigation system is required when directed by the Engineer or specified on the plans.
8. Irrigator's license is now issued through TNRCC.
9. Clarified the requirement for the Contractor to be responsible for obtaining backflow preventer testing that may be required during the period this Item is in use and for paying all fees involved.

200 ITEMS, SUBGRADE TREATMENTS AND BASE

Item 204, "Sprinkling"

1. No significant changes to this specification.

Item 210, "Rolling"

1. Combined Items 210, 211, 212, 213, 214, 215, and 217 into Item 210.
2. Changed name of Item 210 from "Rolling (Flat Wheel)" to "Rolling."
3. This item is now an equipment specification with the construction methods placed in the applicable items.
4. Changed nomenclature of 'flat wheel' to 'steel wheel' based on input from industry.
5. Added the ability for a heavy tamping roller to have more than 3 drums based on industry recommendation.
6. Added the ability for a heavy tamping roller to have tamping feet between 7 and 21 square inches instead of limiting the area of the feet to 7 inches.
7. Added wording to allow the use of an approved asphalt release agent to be used to moisten the drum of a vibratory roller. This was a district recommendation.
8. Added the ability for other methods to be used in lieu of moistening tire surfaces to prevent mix pickup when using a pneumatic tire roller. This change was recommended by AGC
9. Deleted the option to allow a heavy pneumatic roller to be pulled by another unit. All pneumatics must be self-propelled.
10. Combined measurement and payment articles and deleted the option to specify this item as a pay item.

~~**Item 211, "Rolling" (Tamping)**~~ Combined with Item 210, "Rolling."

~~**Item 212, "Rolling" (Heavy Tamping)**~~ Combined with Item 210, "Rolling."

~~**Item 213, "Rolling" (Pneumatic Tire)**~~ Combined with Item 210, "Rolling."

~~**Item 215, "Rolling" (Grid)**~~ Combined with Item 210, "Rolling."

Item 216, "Proof Rolling"

1. Changed title from 'Rolling (Proof)' to 'Proof Rolling.'
2. Equipment requirements are now referenced to Item 210.2.D, "Pneumatic Tire Rollers."
3. Rollers must weigh at least 25 tons but no more than 50 tons. This will allow medium pneumatic or heavy pneumatic rollers to be used.

~~**Item 217, "Rolling" (Vibratory)**~~ Combined with Item 210, "Rolling"

Item 247, "Flexible Base"

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1. Grades 3 and 5 that are currently in the 1993 book have been deleted. The 2004 Grade 3 is the same as the 1993 Grade 4. The 2004 Grade 4 is the same as the 1993 Grade 6. Grades 1 and 2 are the same as in the 1993 book.
2. Linear shrinkage will only be required when the liquid limit is unattainable, as defined in Tex-104-E.
3. Minimum P.I. requirement can be required by plan note.
4. Material Types: Type A allows only crushed stone produced from a single source. Type B and C did not change. Type D allows Type A material or crushed concrete. Type E allows material as shown on the plans.
5. Added a section specifying requirements for recycled materials, including crushed concrete, and requirements for recycled material sources. Recycled materials may be used when shown on the plans and in the percentages shown on the plans.
6. Added wording from Item 204 for water requirements instead of referencing the item.
7. Added the option of using "Ordinary Compaction" when shown on the plans.
8. Added rolling instructions to 'general' section of 'Compaction' because they were taken out of Item 210.
9. Before and during compaction, each layer will be brought to the moisture content directed by the Engineer.
10. Use Tex-103-E to check moisture content at the beginning of and during compaction.
11. The finished section must be cured until the moisture content is at least 2 percentage points below optimum or as directed before applying the next successive course or prime coat.
12. Measurement article has been rewritten. Measurement will be by 'Flexible Base (Complete In Place),' 'Flexible Base (Roadway Delivery),' or 'Flexible Base (Stockpile Delivery).' Payment article has been rewritten to correspond with Measurement article.

Item 251, "Reworking Base Material"

1. This spec has been significantly reorganized.
2. 'Types of Work' now includes 'Refinshing,' which is defined as blading existing base surfaces to remove irregularities and then curing prior to placing new pavement.
3. 'Type of Work' is now only addressed under 'Construction.'
4. Added wording from Item 204 for 'Water' requirements instead of referencing the Item.
5. Moved 'Removal of Asphalt Concrete Pavement' under 'Scarifying.'
6. Moved 'Preparation of Subgrade' under 'general' section of 'Construction.'
7. Moved 'Cleaning Prior to Scarifying' under 'general' section of 'Construction.'
8. Added rolling instructions to 'general' section of 'Compaction' because they were taken out of Item 210.
9. Before and during compaction, each layer will be brought to the moisture content directed by the Engineer.
10. Use Tex-103-E to check moisture content at the beginning of and during compaction.
11. The finished section must be cured until the moisture content is at least 2 percentage points below optimum or as directed before applying the next successive course or prime coat.
12. Measurement article has been rewritten. Measurement will be by 'Station,','Square Yard,''Cubic Yard in Vehicle', cubic yard in stockpile, Cubic Yard in Original Position, or Ton. Class 1- 6 have been eliminated.
13. Payment article has been rewritten to match 'Measurement' Subarticle.

Item 260, "Lime Treatment (Road-Mixed)"

1. Combined Items 260, "Lime Treatment for Materials Used as Subgrade (Road Mixed)" and 262, "Lime Treatment for Base Courses (Road Mixed)." This specification can be used for lime treatment for base or subgrade.

2. Changed title from “Lime Treatment for Materials Used as Subgrade (Road Mixed)” to “Lime Treatment (Road-Mixed)”.
3. Changed reference from Item 264 to DMS 6350, Lime and Lime Slurry, for lime requirements.
4. Refer to lime types as hydrated, commercial lime slurry, or quicklime instead of Type A, B, or C.
5. Added wording from Item 204 for water requirements instead of referencing the item.
6. Added section with mix design requirements.
7. When treating existing materials, the amount of asphalt concrete pavement is limited to no more than 50% of the mix unless otherwise shown on the plans or directed.
8. Changed ‘Lime Storage’ under ‘Equipment’ to ‘Storage Facility.’
9. Added reference to Item 210 and 216 for compaction equipment.
10. Moved ‘Lime Weight Verification’ to ‘Measurement’ article.
11. Changed pulverization requirement from 100% passing 2 inch sieve to 100% passing 2 ½ inch sieve. Passing 2 ½ inch sieve is requirement in 1993 Item 262.
12. Replaced ‘curing’ with ‘mellowing’ after the initial mixing operation. Mellowing requirements are 1-4 days, as directed, for all types of lime except pebble quicklime. Pebble quicklime mellowing requirement is 2-4 days, as directed.
13. After mixing and mellowing, the gradation of the mixture shall comply with requirements of Table 1. The 1 ¾ " and ¾ " sieves will be used for base. The 1 ¾ ", ¾ ", and No.4 sieves will be used for subgrade.
14. Density control method is used for compaction unless otherwise shown on the plans.
15. Moisture content during compaction will be as directed. Tex-103-E will be used to check moisture content at the beginning of and during compaction.
16. Added rolling instructions to ‘general’ section of ‘Compaction’ because they were taken out of Item 210.
17. After compaction, the mixture will be cured in accordance with the requirements in Table 2, ‘Minimum Curing Requirements Before Placing Subsequent Courses.’ The length of time required for curing is based on the plasticity index of the material. Proof rolling may be required as an indicator of adequate curing.

~~**Item 262, “Lime Treatment for Base Courses ” (Road Mixed)**~~ Combined with Item 260, “Lime Treatment (Road-Mixed)”.

Item 263, “Lime Treatment (Plant-Mixed)”

1. Changed title from “Lime Treated Base (Plant Mixed)” to “Lime Treatment (Plant-Mixed).”
2. Changed reference from Item 264 to DMS 6350, Lime and Lime Slurry,’ for lime requirements.
3. Refer to lime types as hydrated, commercial lime slurry, or quicklime instead of Type A, B, or C.
4. Added section with mix design requirements.
5. When treating existing materials, the amount of asphalt concrete pavement is limited to no more than 50% of the mix unless otherwise shown on the plans or directed.
6. Added reference to Item 210 and 216 for compaction equipment.
7. Moved ‘Lime Weight Verification’ to ‘Measurement’ article.
8. Added additional requirements for ‘Mixing Plant’ since mixing plant requirements have been deleted from Item 520.
9. Added a section for ordinary compaction, which can be used when shown on the plans.
10. Moisture content during compaction will be as directed. Tex-103-E will be used to check moisture content at the beginning of and during compaction.
11. Added rolling instructions to ‘general’ section of ‘Compaction’ because they were taken out of Item 210.

12. Combined Section 263.7.(1), "Location and Measurement of Deficient Areas" and Section 263.7.(2), "Price Adjustments." Summarized the deficiency measurements and price adjustments in Table 2. Moved to 'Payment' section.

~~**Item 264, "Lime and Lime Slurry"**~~ Changed to DMS 6350, "Lime and Lime Slurry".

Item 265, "Fly Ash or Lime-Fly Ash Treatment (Road-Mixed)"

1. Changed title from "Lime-Fly Ash (LFA) Treatment for Materials Used as Subgrade" to "Fly Ash or Lime-Fly Ash Treatment (Road-Mixed)". This specification can be used for fly ash treatment or a combination of lime and fly ash treatment for base or subgrade.
2. Combined Item 265, 'Lime-Fly Ash (LFA) Treatment for Materials Used as Subgrade' and Item 266, 'Lime-Fly Ash Treatment for Base Courses (Road Mixed).'
3. Changed reference from Item 264 to DMS 6350, Lime and Lime Slurry,' for lime requirements.
4. Refer to lime types as hydrated, commercial lime slurry, or quicklime instead of Type A, B, or C.
5. Changed fly ash from Type A and B to Type CS or FS, as shown on the plans. The 'S' refers to fly ash for soil rather than fly ash for concrete.
6. Fly ash must meet the requirements of DMS-4615, "Fly Ash for Soil Treatment," instead of DMS D-9-8900, "Fly Ash."
7. Added section with mix design requirements.
8. When treating existing materials, the amount of asphalt concrete pavement is limited to no more than 50% of the mix unless otherwise shown on the plans or directed.
9. Added reference to Item 210 and 216 for compaction equipment.
10. Changed 'Material Storage' under 'Equipment' to 'Storage Facility.'
11. Moved 'Material Weight Verification' to 'Measurement' article.
12. Replaced 'curing' with 'mellowing' after the initial lime mixing operation. Mellowing requirements are 1-4 days, as directed, for all types of lime except pebble quicklime. Pebble quicklime mellowing requirement is 2-4 days, as directed.
13. After mixing and mellowing, the gradation of the mixture shall comply with requirements of Table 1. The 1 ¾ " and ¾ " sieves will be used for base. The 1 ¾ ", ¾ ", and No.4 sieves will be used for subgrade.
14. Density control method is used for compaction unless otherwise shown on the plans.
15. Moisture content during compaction will be as directed. Tex-103-E will be used to check moisture content at the beginning of and during compaction.
16. Added rolling instructions to 'general' section of 'Compaction' because they were taken out of Item 210.
17. Fly ash treated sections will be cured for 24 hours before adding another course or opening to traffic, unless otherwise directed.
18. Added a requirement to dry cured fly ash sections for a minimum of 48 hours before applying a prime coat.

~~**Item 266, "Lime-Fly Ash (LFA) Treatment for Base Course (Road Mixed)"**~~ Combined with Item 265, "Fly Ash or Lime-Fly Ash Treatment (Road-Mixed)"

Item 275, "Cement Treatment (Road-Mixed)"

1. Changed the title from "Portland Cement Treated Materials (Road Mixed)" to "Cement Treatment (Road-Mixed). This specification can be used for cement treatment for base or subgrade
2. Changed reference for cement from Item 524 to DMS-4600, "Hydraulic Cement" and referenced the Department's Hydraulic Cement Quality Monitoring Program (HCQMP).
3. Cement is no longer limited to Type I, IP, or II.
4. Added wording from Item 204 for water requirements instead of referencing the item.

5. Removed Table 1, “Strength Requirements.” Strength requirements will be shown on the plans.
6. Mix design requirements have been revised.
7. When treating existing materials, the amount of asphalt concrete pavement is limited to no more than 50% of the mix unless otherwise shown on the plans or directed.
8. Added reference to Item 210 and 216 for compaction equipment.
9. Added cement storage requirement under ‘Equipment.’
10. Added requirements for cement slurry equipment.
11. Changed pulverization requirement from 100 % passing 2 inch sieve to 100 % passing 2 ½ inch sieve. Deleted the requirement for existing subgrade that 80% shall pass a No. 4 sieve.
12. After mixing, the gradation of the mixture shall comply with requirements of Table 1. The 1 ¾ " and ¾ " sieves will be used for base. The 1 ¾ ", ¾ ", and No.4 sieves will be used for subgrade.
13. Added the option to apply cement in slurry form when shown on the plans.
14. Density control method is used for compaction unless otherwise shown on the plans.
15. Moisture content during compaction will be within 2.0 percentage points of optimum as determined by Tex-120-E. Tex-103-E will be used to check moisture content at the beginning of and during compaction.
16. Added rolling instructions to ‘general’ section of ‘Compaction’ because they were taken out of Item 210.

Item 276, “Cement Treatment (Plant-Mixed)”

1. Changed the title from “Portland Cement Treated Base (Plant Mixed)” to “Cement Treatment (Plant-Mixed).
2. Changed reference for cement from Item 524 to DMS-4600, “Hydraulic Cement” and referenced the Department’s Hydraulic Cement Quality Monitoring Program (HCQMP).
3. Cement is no longer limited to Type I, IP, or II.
4. Added wording from Item 204 for water requirements instead of referencing the item.
5. Mix design requirements have been revised.
6. Reduced minimum compressive strength requirement for Type L from 750 psi to 300 psi. Reduced minimum compressive strength requirement for Type M from 500 psi to 175 psi. Deleted strength Type O.
7. Deleted the allowable cement content percentages from Table 1.
8. When treating existing materials, the amount of asphalt concrete pavement is limited to no more than 50% of the mix unless otherwise shown on the plans or directed.
9. Added reference to Item 210 and 216 for compaction equipment.
10. Added cement storage requirement under ‘Equipment.’
11. Moisture content during compaction will be within 2.0 percentage points of optimum as determined by Tex-120-E. Tex-103-E will be used to check moisture content at the beginning of and during compaction.
12. Added rolling instructions to ‘general’ section of ‘Compaction’ because they were taken out of Item 210.
13. Combined Section 276.7.(1), “Location and Measurement of Deficient Areas” and Section 276.7.(2), “Price Adjustments.” Summarized the deficiency measurements and price adjustments in Table 2. Moved to ‘Payment’ section.

Item 292, “Asphalt Treatment (Plant-Mixed)”

1. Changed the title from “Asphalt Stabilized Base (Plant Mix)” to “Asphalt Treatment (Plant-Mixed).
2. Changed the item number from 345 to 292.
3. Revised requirements for recycled materials.
4. Tack coat requirements have been revised.
5. Los Angeles abrasion requirement will be used as a replacement for wet ball mill test only when shown on the plans.

6. Equipment requirements have been referenced to Item 320.
7. Language reflects standardized language from Item 340.
8. No significant changes to construction practices or measurement and payment.

300 ITEMS, SURFACE COURSES AND PAVEMENT

Item 300, "Asphalts, Oils, and Emulsions"

1. Added reference for sampling and testing requirements.
2. Added a table describing acronyms.
3. Asphalt Cements.
   a. Added AC-0.6 from Special Provision.
   b. Deleted AC-20 and AC-30.
4. Polymer Modified Asphalt Cements.
   a. Deleted description of latex additive.
   b. Deleted AC-10 w/3% latex and AC-10 w/3% latex (High Viscosity Blend). These are for HMAC and were replaced by PG binders.
   c. Added AC-15P and AC-20-5TR from Special Provisions.
   d. Change in AC-15P to remove the low temperature ductility requirement and substitute elastic recovery at a minimum of 55%.
5. Medium Curing Cutback Asphalt. Deleted RC-70 for lack of use.
6. Special Use Cutback Asphalt. Added SCM I and SCM II from the stockpile patching mix specification. This will enable the materials portion to be removed from these specifications. Also, eliminated the ductility requirement on the distillation residue because it cannot be performed properly.
7. Emulsified Asphalt.
   a. Combined High Float Anionic Emulsions and other anionic emulsions.
   b. Eliminated RS-2 and RS-2H due to lack of use. HFRS-2 has replaced these products. Suppliers do not make them for TxDOT use anymore.
8. Cationic Emulsified Asphalt.
   a. Increased Demulsibility of CRS-2 and CRS-2H from 40 to 70. This is a response to field trouble and a request from Brownwood District. Test results showed that this would not be a problem except for the one supplier that had field problems last construction season.
   b. Decreased minimum penetration on CRS-2H and CSS-1H from 80 to 70 as per comment from AEMA and Brownwood District Special Provision. Main effect is to allow a lower pen (harder material) for use in summer.
9. Polymer Modified Emulsified Asphalt.
   a. Consolidate all polymer modified emulsified asphalt (These are anionic) from spec book and special provisions.
   b. Lowered minimum Pen on HFRS-2P from 100 to 90 at request of AEMA.
   c. Increase Demulsibility of HFRS-2P from 40 to 50, at the request of Brownwood District. This is the same problem they had for the CRS-2P. There should be no effect on producers, except where field problems existed. Brownwood suggested demul of 70, but supplier concerns of using enough emulsifying agent to get the float and demul together resulted in selection of 50 instead.
10. Polymer Modified Cationic Emulsified Asphalt.
    a. Consolidate specs from special provisions.
    b. Increase CRS-2P demulsibility from 40 to 70 and decrease minimum pen from 100 to 90 as per AEMA and Brownwood District. Changed Elastic Recovery from 60% to 55% for uniformity with other similar materials.
11. Added separate section for Crumb Rubber Modifier with more generic gradations and allowance for gradations specified on the plans or as approved.
12. Added Polymer Modified Asphalt Emulsion Crack Sealer. This is currently in a Special Specification used by maintenance. They can now refer to this spec for materials properties.

13. Rubber Asphalt Crack Sealer.
    a. Deleted rubber properties.
    b. Added Class B, which is currently defined in GSD spec.
14. Eliminated Fluxing Material
    a. Flux oil - eliminated for lack of use.
    b. Aromatic oil - eliminated for lack of use.
    c. Flux oil may be defined in a general sense in the LRA spec. This material is a specialty product and Vulcan currently makes a product that does not necessarily meet the spec in the 1993 book. We have not tested this product for about 10 years.
15. Deleted Special Precoat Material for lack of use.
16. Deleted Cracked Fuel Oil. Atlanta District wanted to keep this, but we have not tested any product in about 10 years. They may use a Special Specification if they ever want to use it again.
17. Recycling Agent and Emulsified Recycling Agent. Deleted requirements for blending with a Standard Aged binder. The standard binder used is no longer a specified product. We want the binder to rejuvenate the binder to what may be specified in plans, such as a PG 64-22. The specifics should be detailed in specific project plans, not as a general spec requirement.
18. Added Specialty Emulsions. These are products currently described in special provisions.
19. Added Asphalt-Rubber Binders. These are the products for Asphalt-Rubber surface treatments (Item 318) or HMA (Special Specs). We refer to them according to the ASTM spec and not describe the rubber used. ASTM does not require specific gradations of rubber.
20. Performance Graded Binders. Added PG binders from Special Provision, but added an additional Elastic Recovery requirements for all PG binder with temperature range greater than 92C. This should address district desires for an elastic polymer without the need to specify a specific polymer by special provision.
21. Added table describing Typical Material Uses. This may aid designers, Area Engineers, and Contractors in the selection of materials.
22. Storage, Heating, and Application Temperatures. Modified some temperatures at the request of THMAPA and Houston District. Modifications were to lower the maximum allowable and storage maximum for some binder to 350F. Polymer modified surface treatment binders remain at 375F maximum for spray application.

Item 301, "Asphalt Antistripping Agents"

1. Removed references to moisture susceptibility tests and requirements for those tests. These should be specified in the Item governing the mixture.
2. Incorporated existing Special Provisions to include the various ways lime can be added at the plant, but allow district to specify a method if desired.
3. Require steps be taken to avoid the loss of lime in the exhaust air stream. Drum Mix plants either use a bag house dust collector and feed dust back into the plant or the mixture is subject to testing using the design moisture susceptibility test procedure on production mix, before placement.

Item 302, "Aggregates for Surface Treatments"

1. Combined Item 303 "Aggregates for Surface Treatments (Lightweight)" with Item 302.
2. 302.2.A. Removed definition of lightweight and referred to Tex 100-E Procedure for definitions.
3. 302.2.A. Added provisions for Surface Aggregate Classification.
4. 302.2.A. Table 2. Combined Lightweight gradations with standard aggregate gradations changed some of the spec values.
5. 302.2.A. Table 2. Re-labeled modified gradations with S suffix.
6. 302.2.A. Table 2. Changed #10 sieve to #8 sieve to match HMA sieve sizes.

7. 302.2.A. Table 3. Replaced Tex 217-F Part II with Tex 406-A (Concrete Decant Test).
8. 302.2.A. Table 3. Added Tex 410-A Los Angeles Abrasion requirement of 40 for Limestone Rock Asphalt.
9. 302.2.A. Table 3. Tex 461-A Micro Deval not for acceptance, but as an indicator for further investigation.
10. 302.2.A. Table 3. Tex 411-A took out remark "as shown on plans."
11. 302.2.A. Table 3. Took out requirement for Unit Weight Tex 404-A to be within 6 percent of the acceptance sample.
12. 302.2.A.4. Added that "each source" would meet Table 3 requirements.
13. 302.2.B.1.a. Added wording to allow precoat to be removed and aggregate tested when aggregate quality is questioned.
14. 302.2.B. Replaced AC content with optional Engineer selected target value +/- 0.3% tolerance. Specified Ignition Furnace Tex 236-F.
15. 302.4 (Old spec). Took out provisions for 99.5 – 100 on 200 Sieve – not needed if using Concrete Decant.
16. 302.5 (Old spec). Took out equipment mixing requirements. Not concerned with how it is precoated.

~~**Item 303, "Aggregate for Surface Treatments (Lightweight)**~~ Combined with Item 302, "Aggregate for Surface Treatments".

Item 305, "Salvaging, Hauling, and Stockpiling Reclaimable Asphalt Pavement"

1. No significant changes.

Item 310, "Prime Coat"

1. Changed title and combined Item 310, "Prime Coat (Cutback Asphaltic Material)" and Item 312, "Prime Coat (Cutback Asphaltic Material and Sand)".
2. Eliminated "cutback asphalt"; used "bituminous."
3. "Blotter" is used in lieu of sand, native sand, base sweepings, etc.
4. Item 316 is referenced for equipment requirements.
5. Optional (Engineer's) requirement to pneumatic roll freshly applied prime to facilitate penetration has been added.
6. Blotter material will not be paid for separately; included in the bid price for prime coat.

~~**Item 312, "Prime Coat (Cutback Asphaltic Material and Sand)"**~~ Combined with Item 310, "Prime Coat".

Item 314, "Emulsified Asphalt Treatment"

1. No significant changes.

Item 315, "Fog Seal"

1. Changed the Item title from "Emulsified Asphalt Seal" to "Fog Seal."
2. Added sand to blot excess asphalt and maintain ingress and egress.

Item 316, "Surface Treatments"

1. Included an option by plan note for the use of variable nozzles on spraybar. Wording is open enough to allow the use of either variable nozzles furnished by the Contractor or the Bearcat double bar distributor.
2. Changed requirement for 3 year tank calibration to 5 years when measurement for pay is by volume.
3. Added requirement that Contractor documents that the spraybar and nozzle combination have been checked in accordance with Tex-922-K, Part III (bucket test). Had some requests from TxDOT personnel to require Contractor to furnish test report for bucket test.
4. Defaulted rollers to light weight pneumatic.

5. Require Contractor to furnish documentation on the volume of the haul trucks.
6. Incorporated Special Provision 316-004 requiring higher air and surface temperature requirements for all modified asphalt cement binders.
7. Incorporated air and surface temperature requirements, as approved, for wintertime asphalts.
8. Added rquirement that Contractor set shot and rock land lengths.
9. Max shot width set to width of current transverse distribution test report or width of aggregate spreader box, which ever is less, but may not encroach on traffic.
10. Changed the selection of application temperature from Engineer selecting to Contractor selecting with approval from the Engineer.
11. Added limitations for asphalt application to require traffic control and aggregate for each shot to be loaded and in place before shot begins.
12. Included wording on actions to be taken for nonuniform asphalt application, which includes checking emulsion viscosity.
13. Included provision for test strips.
14. Added a minimum number of passes, specified enough rollers to cover mat in one pass, and specified staggered rolling pattern.
15. Removed paragraph pertaining to driveways and turnouts which referenced Item 530.

Item 318, "Hot Asphalt-Rubber Surface Treatments"

1. Required a blend design for Type II or III as designated in Item 300.
2. Removed gradation requirement for Crumb rubber. Let material requirements in Item 300 dictate rubber gradation based on blend design.
3. Defaulted surface aggregate class to "B" unless otherwise shown on plans.
4. Removed requirements for diluent. It is not used.
5. Took out requirements for extender oil. This is addressed by requiring a blend design and meeting the asphalt-rubber requirements specified.
6. Added requirements for optional use of micro-motion flow meters and calibration requirements if they are used for payment.
7. Defaulted rollers to medium weight pneumatic and removed flat wheel roller.
8. Required Contractor to furnish documentation on the volume of the haul trucks.
9. Added equipment requirement for vehicle with DMI. Needed for requirement that Contractor set the shot lengths.
10. Added the ability for TxDOT to supply aggregate.
11. Removed recipes for mixing and referred to blend design and required project batch testing.
12. Added statement about removing buttons when shown on plans.
13. Require that Contractor set shot and rock land lengths.
14. Shot width must be adjusted so as not to encroach on traffic.
15. Added limitations for asphalt application to require traffic control and aggregate for each shot to be loaded and in place before shot begins.
16. Expanded requirement for test sections.
17. Included wording on actions to take for non-uniform asphalt application.
18. Added a minimum number of passes, specified enough rollers to cover mat in one pass, and specified staggered rolling pattern.
19. Added measurement and payment provisions for Load, Haul, and Distribute for use if TxDOT supplies aggregate.

Item 320, "Equipment for Asphalt Concrete Pavement"

1. This is a new specification to be referenced by other hot mix items (330, 334, 340, 341, 342, 344, & 346).

Item 330, "Limestone Rock Asphalt Pavement"

1. Changed title from "Limestone Rock Asphalt Pavement (Class A)." Combined Item 330 (Class A LRA) and Item 332 (Class B LRA) into one specification.

2. Removed Class A and Class B terminology and replaced by Type I (consists entirely of native LRA aggregate) and Type II (consists of a blend of native LRA aggregate and Class A aggregates).
3. Removed polish value requirements and included minimum surface aggregate classification requirements under the Aggregate Quality Monitoring Program (AQMP) listed in the *Rated Source Quality Catalog*.
4. Added requirement for testing organic impurities for fine aggregates.
5. Changed average bitumen content range from (5.0 to 9.0) to (5.0 to 8.5) percent by weight of naturally impregnated asphalt.
6. Updated LRA aggregate requirements in Table 1 to reflect current practices.
7. Included Micro-Deval requirements as an indicator test in conformance with other hot-mix specifications.
8. Added Table 2 defining Fluxing Material requirements (flux and aromatic oil). Removed reference to Item 300.
9. Tack Coat. Added minimum high temperature grade of PG 58 requirement when performance grade asphalt cement is used. Added note not to dilute emulsified or cut back asphalts in the field prior to use.
10. Additives. Added to QCP requirements. Provided the opportunity to add lime (to the virgin aggregates) or antistripping agents in accordance with Item 301.
11. Added reference to Item 320, “Equipment for Production, Hauling, and Placement of Hot Mixed Asphaltic Materials.”
12. Cold Aggregate Bins and Proportioning Devices. Removed bin requirements for each type of mixture. These requirements will be provided as part of the QCP.
13. Removed reference to Scales, Motor Grader and Straightedges and Templates.
14. Added Quality Control Plan (QCP).
15. Stockpiling of Aggregates and LRA. Added requirement to provide LRA or aggregate stockpiles for a minimum of 2 days’ production before beginning plant operations. Added requirement of maintaining at least a 2-day aggregate supply through the course of the project unless otherwise directed.
16. Storage and Heating of Fluxing Material. Removed reference to Item 300 for heating and added reference to manufactures recommendation.
17. Job-Mix Formula. Removed Engineer from furnishing mixture design and made this a responsibility of the Contractor.
18. Mixing. Removed requirement to add distillate (defined as diesel) to improve winter stockpiling.
19. Paving Mixtures. Slightly modified Master Grading requirements to reflect current practices.
20. Added test procedures and values in Tables 3 through 6 to reflect current practices.
21. Removed 4.0% maximum water content value and added that mixture should leave the plant in workable condition.
22. Added provision that materials should remain workable in the stockpile for at least 6 months.
23. Change water and light hydrocarbon volatiles content from maximum of 4.0% to 5.5%.
24. Added test method Tex-530-C (Boil Test) to Table 5 with a limit of 10%. This value may be decreased or eliminated when shown on the plans.
25. Proportioning. Removed limits and added revised limits to Table 4.
26. Placement Operations. Added wording about Weather Conditions consistent with other hot-mix specifications.
27. Tack Coat. Changed tack coat rate from not to exceed 0.05 gal/sy to 0.04 to 0.10 gal/sy. Added new test method (Tex-243-F) to verify that the tack coat has adequate adhesive properties.
28. Compacting. Removed reference to Subarticle 340.6.(5).
29. Compaction. Removed requirements for furnishing specific types of rollers. Added that the contractor will furnish the type, size and number of rollers required to achieve compaction in accordance with rolling patterns.

30. Added Irregularities article consistent with other hot-mix specifications.
31. Added requirement that Type A ride requirements apply to all surfaces, unless otherwise shown on the plans.
32. Added reference to Item 520, "Weighing and Measuring Equipment."
33. Volumetric Method. Changed value of 'Y' from 4.0% to 5.5% consistent with Table 5.
34. Added pay adjustment for ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces."

~~**Item 332, "Limestone Rock Asphalt Pavement (Class B)"**~~ Combined with Item 330, "Limestone Rock Asphalt Pavement."

Item 334, "Hot-Mix Cold-Laid Asphalt Concrete Pavement"

1. Changed title from "Hot Mix-Cold Laid Asphaltic Concrete Pavement".
2. Added Quality Control Plan.
3. Removed polish value requirements and included minimum surface aggregate classification requirements under the Aggregate Quality Monitoring Program (AQMP) listed in the Rated Source Quality Catalog.
4. Changed definition of coarse aggregate to reference No. 8 sieve instead of No. 10 sieve in conformance with other hot-mix specifications.
5. Modified Lightweight Aggregate requirements in Table 1.
6. Added requirement for testing organic impurities for fine aggregates.
7. Tack Coat. Added CSS-1H, SS-1H, or minimum high temperature grade of PG 58 requirement. Added note not to dilute emulsified or cut back asphalts in the field prior to use.
8. Added operational tolerance for asphalt binder of $\pm$ 0.3% to Table 7.
9. Mixing Plants. Removed bin requirements for each type of plant
10. Removed reference to Scales, Motor Grader and Straightedges and Templates and instead reference Item 320 for all equipment.
11. Mixture Design. Removed Engineer from furnishing mixture designs and made this a responsibility of the Contractor.
12. Added provision that materials should remain workable in the stockpile for at least 6 months.
13. Job Mix Formula (JMF) Approval. Added that the mixture can be approved from a trial batch.
14. Modified Master Grading requirement to reflect new sieve sizes.
15. Added test method Tex-530-C (Boil Test) to Table 5 with a limit of 10%. This value may be decreased or eliminated when shown on the plans.
16. Production Operations. Added requirement to provide aggregate stockpiles for a minimum of 2 days' production before beginning plant operations. Added requirement of maintaining at least a 2-day aggregate supply through the course of the project unless otherwise directed.
17. Placement Operations. Added wording about Weather Conditions consistent with other hot-mix specifications.
18. Tack Coat. Changed tack coat rate from not to exceed 0.05 gal/sy to 0.04 to 0.10 gal/sy. Added new test method (Tex-243-F) to verify that the tack coat has adequate adhesive properties.
19. Compaction. Removed requirements for furnishing specific types of rollers. Added that the contractor will furnish the type, size and number of rollers required to achieve compaction in accordance with rolling patterns.
20. Added Irregularities article consistent with other hot-mix specifications.
21. Added requirement that Type A ride requirements apply to all surfaces, unless otherwise shown on the plans.
22. Added reference to Item 520, "Weighing and Measuring Equipment."
23. Removed 334.8(2) and 334.8(3). Added pay adjustment for ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces."

Significant Changes 2004 Specifications

Item 340, "Dense-Graded Hot-Mix Asphalt (Method)"

1. Changed title from "Hot Mix Asphaltic Concrete Pavement".
2. Default for Rap use was changed from "allowed unless specifically excluded herein or on the plans", to "is permitted only when shown on the plans."
3. In definitions of coarse and fine aggregate, and in all mixture gradations, the number 10 sieve has replaced the number 8 sieve.
4. Aggregate must be mechanically crushed gravel or stone.
5. Aggregate properties have been adjusted to current standards
6. Tack Coat requirements have been expanded.
7. All equipment sections have been removed and instead reference Item 320.
8. Mixture design is the responsibility of the contractor, not the Department.
9. Mixture gradations were adjusted.
10. Requirement added for plant produced VMA.
11. Lab mixture design properties were modified. Hveem Stability removed. Indirect tensile strength added.
12. Hamburg Wheel requirements added.
13. Operational tolerances added for passing #200, lab-molded density and VMA. Operational tolerance deleted for asphalt volume.
14. Added to cease production if tolerances are exceeded on 4 consecutive tests on any of the sieves.
15. Mixture lift thickness requirements added.
16. Placement temperature changed to minimum roadway temperature of 60F.
17. Added the ability to use a tack coat adhesion test.
18. Tack coat rate range added to allow for more tack.
19. Suggested minimum mixture placement temperature added.
20. Surface irregularities expanded and is cause for suspension of production or remove and replace.
21. Reference made to Item 520 for measuring and weighing equipment.
22. Composite volume method of measurement and payment were deleted.

Item 341, "Dense Graded Hot Mix Asphalt (QCQA)"

1. New Item written as a QCQA specification with an option to use as a method specification. The following changes are in reference to SS 3146 rather than 1993 Specification, Item 340.
2. Made the Contractor responsible for performing "non Quality Monitoring (QM)" aggregate tests.
3. Added the Micro-Deval test for coarse aggregate.
4. Dropped all reference to polish value. Added surface aggregate classification requirement.
5. Allows the use of agricultural fine, crusher fines, hydrated lime, cement or fly ash as mineral filler.
6. Added wording to say - "Do not dilute emulsified or cut back asphalts at the terminal, in the field or at any other location before use."
7. Added wording to say - "Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that re-introduces the lime back into the drum."
8. Test Method Tex-242-F (Hamburg) is required for design and production verification on all mixtures.
9. Refers to Item 320 "Equipment for Production, Hauling and Placement of Asphalt Material."
10. Added requirement for Contractor to supply a quality control plan.
11. Changed aggregate gradation requirements on A, B, C, D, & F mixes to reflect AASHTO sieve sizes. Example: #8 sieve is used rather than #10. Values were interpolated.
12. Increased the allowable % passing the #200 sieve by 1%.
13. Added maximum tensile strength requirement to prevent overly stiff mixtures.

14. Tied the number of passes in the Hamburg test to the PG binder grade.
15. Allowed for sharing of gyratory compactors.
16. Allow Contractor to supply Hamburg results on the mixture design.
17. Require trial batch to pass Hamburg test.
18. Only the Contractor is allowed to request referee testing.
19. Reduced allowable differences between contractor and department testing results to make it easier for the Contractor to request referee testing.
20. Percent passing #200 may exceed master grading limits without automatic shut down provisions.
21. No longer allow solvent extraction to be used. Ignition oven, belt sampling, and nuclear AC gauge allowed.
22. Made provision for testing the moisture content of the mixture at the Engineer's discretion.
23. Mix produced in excess of 350F will not be paid for nor placed on Department projects.
24. Added wording - When a release agent is necessary, use a Department approved release agent to coat the inside bed of the truck.
25. Added a table (Table 8) with suggested lift thicknesses and minimum core heights that are eligible for testing.
26. Added - Place mixture when the roadway surface temperature is 60^{o}F or more unless otherwise approved.
27. Added - Unless otherwise approved, apply tack coat uniformly at a rate between 0.04 and 0.10 gal. residual asphalt per square yard of surface area.
28. Added - The Engineer may use Test Method Tex-243-F to verify that the tack coat has adequate adhesive properties.
29. Added - Thermal Profile. For each sublot, obtain a thermal profile using Tex 244 F. The Engineer may also obtain as many thermal profiles as deemed necessary. If the temperature differential is greater than 25°F, the area will be deemed as having thermal segregation. Evaluate areas with thermal segregation by performing a density profile in accordance with Section 341.4.I.3.c(2), "Segregation (Density Profile)." Take corrective action to eliminate areas that have thermal segregation. Unless otherwise directed, suspend operations if maximum temperature differential exceeds 50°F. Resume operations when the Engineer determines that subsequent production will meet the specifications.
30. In lieu of requiring insulated truck beds, provisions were added to limit the minimum temperature of the mixture (both surface and internal) prior to placement.
31. Added provision to allow referee testing for all mixture subject to "removal and replacement" regardless of difference between the Contractor's and Engineer's test results.
32. Lot 1 is always 1,000 tons to allow for setting rolling patterns etc.
33. At the beginning of the project, the Engineer will select random numbers for all production lots.
34. For each lot, the Engineer will randomly select and test at least 1 sublot. The location of the Engineer's sample will not be disclosed to the Contractor.
35. Contractor is required to take an asphalt binder sample for each sublot of hot mix.
36. Several changes were made to the production testing frequency (Table 10).
37. Added – When required by the Engineer, suspend production when either the Contractor's or the Engineer's test results, for gradation on any individual sieve, exceed the operational tolerances for 3 consecutive sublots. The 3 consecutive sublots may be from more than 1 lot. A sublot will be considered out of tolerance for gradation if any sieve is out of tolerance.
38. Added - The Engineer may perform a Hamburg Wheel test at any time during production including when the boil test indicates a change in quality from the materials submitted for JMF1.

39. Changed definition of a placement lot. Added - A placement lot consists of 4 placement sublots. A placement sublot consists of the area placed during a production sublot.
40. Added - no placement penalty will be assessed for any sublot placed in Lot 1, when the in-place air-voids are greater than or equal to 2.7% and less than or equal to 9.9%.
41. Changed wording to say - Shoulders and ramps are subject to in-place air-void determination and pay adjustments unless otherwise shown on the plans.
42. Added - At the beginning of the project, the Engineer will select random numbers for all placement sublots.
43. Made provisions to allow Contractor to take cores immediately after each placement sublot is completed.
44. Added - If an adequate bond does not exist between the current and underlying layer, take corrective action to insure that an adequate bond will be achieved during subsequent placement operations.
45. Added provisions to require 6" cores except for on Type D and F mix.
46. Changed wording on trimming of cores. If it gets trimmed it gets tested. Do not trim the cores before delivering to the Engineer if electing not to include the pair of cores in air-void determination. The placement pay factor for that sublot will be 1.000.
47. Requirements were added to require density profiles to be run to check for segregation.
48. No bonus will be paid on mix failing the density profile.
49. Joint density requirements were added.
50. Irregularities definitions were expanded. Irregularities also include a provision to test for burned asphalt.
51. Changes were made to the production and placement pay adjustment tables (tables 12 & 13). Placement pay adjustments were tightened considerably.
52. Provisions were made to perform Hamburg testing on mix failing the lab density requirements (eligible for removal and replacement). The production sublot is paid at 70% if it passes the Hamburg test.
53. Placement sublots eligible for removal and replacement are retested by obtaining additional cores within 3 feet of the original cores.
54. Various changes were made pertaining to Certification requirements (Appendix A).

Item 342, "Permeable Friction Course (PFC)"

1. This is a new specification that incorporates Porous Friction Course (SS 3231) and Crumb Rubber "Plant Mix Seal". Item #342 was reused from the 1993 specification; however, there are numerous differences between plant mix seal and Permeable Friction Courses (PFC). This is not a QCQA specification; however, it is written with language similar to QCQA items.

Item 344, "Performance-Designed Mixtures"

1. This is a new specification that incorporates Superpave (SS 3241), Stone Filled HMACP (SS 3249) and CMHB (SS 3146). All significant changes listed above for Item 341 apply to Item 344 with the exception of 1and 45.
2. Added - In addition to meeting the certification requirements in Appendix A, all Level II, certified specialists must successfully complete an approved Superpave (SP) training course.
3. Added - no placement penalty will be assessed for any sublot placed in Lot 1, when the in-place air-voids are greater than or equal to 2.7% and less than or equal to 9.0%.
4. Added provisions to require 6" cores except for SP-C, SP-D, and CMHB-F mixtures, 4-in.
5. Added a provision to design and place a "Rich Bottom Layer" as part of a perpetual pavement design.

Significant Changes 2004 Specifications

~~**Item 345, "Asphalt Stabilized Base (Plant Mix)"**~~Changed to Item 292, "Asphalt Treatment (Plant-Mixed)".

Item 346, "Stone-Matrix Asphalt"

1. This is a new specification that incorporates existing SMA and Heavy Duty SMA (SS 3248) specifications as well as what was Crumb Rubber hot mix. All significant changes listed above for Item 341 apply to Item 346 with the exception of 1, 9, 27, 40, 45, and 55.
2. Allows the use of cement or fly ash as a mineral filler.
3. Refers to DMS 9204 which allows either cellulose or mineral fibers.
4. Added - In addition to meeting the certification requirements in Appendix A, all Level II, certified specialists must successfully complete an approved Superpave (SP) training course.
5. Added - Place mixture when the roadway surface temperature is 70^{o}F or more unless otherwise approved.
6. Added - no placement penalty will be assessed for any sublot placed in Lot 1, when the in-place air-voids are greater than or equal to 2.7% and less than or equal to 8.0%.
7. Added provisions to require 6" cores.

Item 350, "Microsurfacing"

1. New Item developed from Special Specification 3138.
2. Deleted the CSS-1P emulsion requirements and refer to the Item 300 specification.
3. Deleted the polish value requirements and included the WWARP requirements.
4. Will allow either cement or hydrated lime mineral filler at the contractor's option.
5. Reorganized the design requirements under a Job Mix Formula section.
6. Reorganized the current spec so that all equipment requirements are under the Equipment section.
7. Added a thermometer requirement to record temp continuously on asphalt storage equipment.
8. Added verbiage to cease operations under adverse weather conditions.
9. Reorganized the mix testing requirements in the Production Testing section under Const. Methods.
10. Added verbiage to use a rigid primary strike off plate under the Rut section.

Item 351, "Flexible Pavement Structure Repair"

1. Revised 1993 Item 351, "Repairing Existing Flexible Pavement Structure"
2. Added Limestone Rock Asphalt, (Item 330) as a possible base material.
3. Written to be used for maintenance callout work as well.

~~**Item 352, "Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)"**~~
This Item was moved to Item 712, "Cleaning and Sealing Joints and Cracks (Asphalt Concrete)."

Item 354, "Planing and Texturing Pavement"

1. Changed title from "Planing and/or Texturing Pavement."
2. Added manual system for planing in areas restricted to self-propelled access and for detail pavement removal.

Item 356, "Fabric Underseal"

1. Combinded existing Item 356, "Fabric Underseal" with Special Specification 3031, "Fabric Joint Underseal."

Item 358, "Asphalt Concrete Surface Rehabilitation"

1. Changed title from "Asphaltic Concrete Surface Rehabilitation."
2. Changed philosophy to contractor-designed mix to restore mixture to mix and binder properties shown in the plans. The Engineer is not required to design the mixture,

conduct any design testing for the contractor, or make any material decisions for the contractor.

3. Raised allowable temperature behind the scarifier to 325 F.

Item 360, "Concrete Pavement"

1. The specification has been reorganized with the number of "Articles" reduced from 16 to 6. Consolidated many of the construction-related articles into a single "Construction" article.
2. Portland Cement Concrete changed to "Hydraulic Cement Concrete" to reflect the increased usage of fly ash and GGBF. Replaced Class "K" concrete with Class "HES" (High Early Strength concrete) to eliminate confusion over requirements.
3. Materials moved to TxDOT-DMS specifications: Curing Materials and Evaporation Retardant moved to DMS-4650, "Hydraulic Cement Concrete Curing Materials and Evaporation Retardants." Epoxies moved to DMS-6100, "Epoxies and Adhesives."
4. Strength requirement for mix design and job control have been reduced. Compression testing is permitted for both mix design and job control.
5. Location of some material requirements have been moved from other Items to Department Materials Specifications, i.e., joint sealants and fillers and curing materials.
6. Curing application equipment and tine texturing equipment can be mounted on same piece of moving equipment, if production remains adequate.
7. The requirement for a "Paving Plan" has been expanded to become a "Paving and Quality Control Plan". The default is for the contractor to perform strength, slump and air content job control tests, including providing certified personnel, making specimens, transporting, testing, and providing the calibrated test equipment. Test schedule has been included with Engineer direction and option to witness operations. Per FHWA request, included 1:10 verification testing by TxDOT.
8. Paving operations will cease if the contractor is unable to identify, document and correct problems with deficient strengths. Remove and replace structurally deficient concrete pavement.
9. Contractor will imprint date at beginning and end of each placement. Contractor may also imprint name or logo with date.
10. Metal tine texturing is required unless otherwise shown on the plans. This allows the districts to delete this requirement on lower speed roadways.
11. Maintain a supply of materials to cover and protect fresh concrete pavement surface from damage (rain).
12. Early opening to traffic. Eliminated option to automatically open pavement to 14,000 lb. vehicles of the Contractor after 4 days. Now opens to all traffic after 3 curing days based on an early opening strength being met, either with maturity strength estimates, or with laboratory specimens and curing days. Definition of curing day changed from calendar day to 24-hour period and coordinated with Item 420.
13. Very early opening to construction equipment. May open after two days to Contractor's paving equipment and paving materials delivery equipment, based on reaching opening strength using maturity.
14. Repair damaged curing membrane after placement.
15. Contractor is responsible for all testing for early opening (strength specimens & maturity testing).

Item 361, "Full-Depth Repair of Concrete Pavement"

1. Changed title from "Full-Depth Repair of Existing Concrete Pavement".
2. Use Class "HES" when the timeframe for opening to traffic is specified to be within 72 hours of placement. Otherwise, use Class "P" in accordance with Item 360.
3. Stabilized Base Material heading was changed to Base Material because not all base material allowed is stabilized. Eliminated the listing of all Items that could be used as base material so the base material required now needs to be shown on the plans. Default is to use concrete.

4. Added reference DMS 6100 for epoxy.
5. Eliminated Miscellaneous materials because it should already be covered because we included Item 360 in the pertinent material list.
6. Changed the repair area width from a full lane width to half lane width to address the maintenance special provision which allows half lane width repairs.
7. Did away with the pressure relief sawing. Felt that this is a contractor problem if the saw blade get bound up and it would automatically be done to release a bound up saw blade.
8. Eliminated the tiebar bond test since we specify the epoxy to be used and we added the requirement that the tiebar hole be filled with epoxy before installing the tiebar. Field observation of the methods presently being used are not satisfactory. Tiebars are now often being dipped into the mixed epoxy and then inserted in the hole with a gob of epoxy on a portion of the 12 inch inserted portion. The bar is usually not even coated the full 12 inch insertion length.
9. Require curing mats for temperature control if repair is to be opened within 72 hours and air temperature gets below 70 F.

Item 368, "Concrete Pavement Terminals"

1. Changed title from "Terminal Anchorage Lugs (Concrete Pavement)."
2. This Item makes significant use of other items that have been significantly revised, particularly Items 360 and 421.
3. Item has been rewritten as a more generic specification to include concrete pavement terminals with the Wide Flange Beam system, developed by HOU, and the expansion joint system that DAL developed. This is in addition to retaining the terminal anchor lugs shown in the statewide standard details sheets TA (CP)-99, "Terminal Anchorage for Concrete Pavement". Details for all methods will be provided on statewide or district standard detail sheets.
4. Very early opening to construction traffic to expedite construction at two days and early opening to public traffic at three days permitted in accordance with the revised Item 360, "Concrete Pavement" and the use of the maturity method or additional laboratory strength specimens.
5. Location of some material requirements have been moved from other Items to Department Materials Specifications, i.e., joint sealants and fillers and curing materials.

400 ITEMS, STRUCTURES

Item 400, "Excavation and Backfill for Structures"

1. Eliminated separate "Trench" and "Embankment" bedding diagrams, since specification requires embankment to be built on foot above top of pipe, then trenched to allow installation of pipe into the trench.
2. Eliminated separate bedding diagrams for elliptical and arch pipe, as the diagrams are similar to round pipe. Defined "Bc" dimension as the "Outside diameter or horizontal dimension".
3. Specification allows "Structural Excavation" to be set up as either a pay item, or as subsidiary to the other items. "Cement-stabilized Backfill" and "Cutting and Restoring Pavement" remain as pay items.
4. Reduced pay items for structural excavation to "Structural Excavation", "Structural Excavation (Culvert)", and "Structural Excavation (Bridge)". Eliminated "Structural Excavation (Culvert, Small)" and "Structural Excavation (Culvert, Large)" because there seemed to be little difference in bid price between the two. Eliminated "Structural Excavation (Trench)" and "Structural Excavation (Riprap)", because of little usage in several years.

5. Set prices for overexcavation depths up to 10 ft. when structural excavation is not a pay item. Special Specification 400-001 (which makes structural excavation subsidiary) currently requires any overexcavation to be handled under 4.3 as Extra Work.

Item 401, "Flowable Backfill"

1. This is a new item based on SS 4438

Item 402, "Trench Excavation Protection"

1. Eliminated Payment paragraph, "No payment will be made for excavation protection made necessary due to the selection of an optional design or sequence of work that creates the need for the protection system."

Item 403, "Temporary Special Shoring"

1. No longer plan quantity. Measured in field.
2. Requires that construction of temporary MSE walls be in accordance with Item 423.
3. Drawings and calculations are no longer submitted "for approval." They are to be submitted prior to construction with the Department reserving the right to reject designs.

Item 404, "Driving Piling"

1. Changed title from "Driving Equipment."

Item 405, "Foundation Test Load"

1. Removed 1/2 payment for re-load test.

Item 406, "Timber Piling"

1. No significant changes.

Item 407, "Steel Piling"

1. Changed painting to shop-applied.
2. Changed steel grade requirements for piling tips.
3. Splice payment factor changed from 3 to 4.

Item 409, "Prestressed Concrete Piling

1. No significant changes.

Item 416, "Drilled Shaft Foundations"

1. All core holes are now paid at $125.00 each. Previous spec had first core hole on each bent subsidiary.
2. Modified definitions for "Maximum Plan Length Shaft."
3. Added slump loss test for concrete to be placed underwater or under slurry when caging is to be pulled.
4. New requirements on concrete slump, coarse aggregate sizes.
5. New requirements on slurry, including not allowing polymer slurry.
6. New requirements on extending reinforcing steel cage when shaft is excavated beyond plan length.
7. New provision allowing free fall of concrete on dry shafts over 24-inch diameter.

Item 420, "Concrete Structures"

1. Material storage will be allowed on completed structures once the concrete reaches 3000 psi and if curing is maintained.
2. Maximum placement temperature for structural concrete is 95F. No change for deck or mass concrete.
3. Minimum placement temperature for concrete containing GGBF Slag is 60F.
4. Concrete must be discharged within 60 min of batching. This time may be extended if Contractor proves the concrete can be placed without adverse effects.

5. Place concrete within the slump range in Item 421. Concrete that exceeds the tolerances in 421 will be rejected.
6. Can cart concrete over a new deck once 3000 psi has been attained and if curing is maintained.
7. Evaporation retardant will be used after surface finish using carpet drag, burlap drag or broom finish.
8. The fresh concrete in decks will not be tined. Grooves will be saw-cut in the hardened concrete after curing is completed or may be done before completion of curing but curing must be re-established immediately after grooving.
9. Mass concrete is now defined as having a least dimension of 5 or greater. Mass concrete can also be designated on the Plans.
10. Retarders are not required for decks when GGBF Slag or Class F fly ash is used.
11. Transverse screeds must be able to be skewed to match the bridge skew angle for angles >15 degrees unless approved otherwise.
12. Must get 3000 psi before placing the next staged deck placement where staged pours are required in the Plans for continuous units.
13. Bearing seat levelness tolerance of 1/16" in all directions.
14. Forms may be removed after concrete attains 2500 psi. No time duration is specified.
15. Deck concrete must have 3000 psi before railing can be placed.
16. Full construction traffic can drive on the deck provided it has 4000 psi and if curing is maintained.
17. Ordinary surface finish (in 427) is now in this Item.
18. Mass Concrete added as a pay item
19. The understrength review procedure (Templeton memo) is in the spec. No testing will be performed after 56 days.
20. Bridge approach slabs will be paid for in Item 420.
21. Contractor will perform tests on hardened concrete for schedule restrictions (lowering forms, setting beams, etc.) unless otherwise shown on the plans.
22. Superstructure can be placed on substructure when the substructure concrete reaches 3,000 psi.

Item 421, "Hydraulic Cement Concrete"

1. Changed title from "Portland Cement Concrete".
2. Deleted Item 524, Hydraulic Cement, and developed new DMS because this is a material specification and not a construction spec.
3. Changed DMS 8900 to DMS 4610, Fly Ash.
4. Added new pozzolans, UFFA to DMS 4610, Metakaolin DMS 4635.
5. Deleted Item 437 and created DMS 4640, Chemical Admixtures for Concrete, for material portion. Construction portion of Item 437, Concrete Admixtures, incorporated into 421.
6. Will be using magnesium 5 cycle soundness only, not sodium soundness. This soundness requirement does not apply to crushed recycled concrete for coarse aggregate in concrete.
7. Changed gradation requirements from "retained" to "passing" in accordance with national standards.
8. Deleted reference to Item 520 and deleted Item 522. Incorporated pertinent requirements into Item 421.
9. Contractor responsible for inspection and certification of batching and hauling equipment per National Ready Mixed Concrete Association standards.
10. No minimum cement content unless specified.
11. For concrete mix design, ACI 211 or other method acceptable to the Engineer will be used.
12. Only compressive strength testing will be used unless otherwise shown on the plans or specified.
13. Will need to show on plans when sulfate resistant concrete is required. Can only use options 1, 2, 3, or 4.

14. For air entrainment, the Engineer will need to show on plans when severe exposure condition is required. Table is in accordance with national standards (ACI). Guidance will be provided.
15. Added slump testing tolerances.
16. Added two new options to mitigate ASR. One allows the use of Class C fly ash with UFFA, silica fume, or metakaolin. The other includes the use of lithium. Option 6 now is Option 8 and has been modified and made more practical.
17. Contractor is responsible for trial batches.
18. Added batch weight tolerances in accordance with national standards.
19. The following classes have been identified as structural concrete (different testing requirements): C, F, H, S, CO, DC, LMC, & SS.
20. For structural concrete, the Engineer will make and test 7-day and 28-day compressive strength (revised frequency in the Guide Schedule). 7-day tests will be compared to correlated target values established during trial batches.
21. Only 7-day testing will be conducted for all other classes of concrete to be compared to correlated target values
22. Contractor to provide compression testing equipment unless noted otherwise.

Item 422, "Reinforced Concrete Slab"

1. No significant changes.

Item 423, "Retaining Wall"

1. Included requirements for Temporary MSE walls and Concrete Block Walls.
2. Modified Select Backfill gradations. Type A is a very high quality (potentially expensive) backfill material available for use behind permanent MSE walls. Type B is the default select backfill for permanent MSE walls, and is equivalent to the Type A in the 1993 specification. Type C is the default for temporary MSE walls, and is nearly equivalent to the Type B in the 1993 specification. Type D is a new, free draining rock backfill to be specified for use in walls subject to inundation.
3. When epoxy coating is specified for earth reinforcements, all steel in panels and coping to be epoxy coated.
4. Allowed use of cement stabilized backfill only when required on the plans or as approved. Cement stabilized backfill is a non-ductile material that is not desirable in many applications, so we are no longer allowing it at the contractors option. This will prevent districts from having to exclude it by note on each job.
5. Limit on the amount of shimming allowed to compensate for out of position leveling pad.
6. Compaction of select fill on permanent walls changed to 95% of Tex-113-E. This is an increased compaction require to address numerous problems with select fills consolidating post-construction when wetted or vibrated.
7. Added requirement to review plumbness and position of each row of panels prior to setting next row.
8. Added a requirement to modify backfill material, placement or compaction method as necessary to meet density requirements while maintaining wall alignment.

Item 424, "Precast Concrete Structures (Fabrication)"

1. The addition of DMS-7300, "Precast Concrete Fabrication Plants," to supplement Item 424.
2. The distinction between a multi-project fabrication plant and a project-specific fabrication plant, and the corresponding differences in QC responsibilities and QC personnel certifications.
3. The distinction between major prestressed members and minor prestressed members, and the corresponding differences in QC responsibilities and QC personnel certifications.
4. Per 424.4.A.2, "Plant submittals and Audits," all major prestressed member fabrication plants must pass an initial Department-directed plant audit performed in

accordance with DMS-7310, "Prestressed Fabrication Plant Audit (Major Prestressed Members)," before performing work for the Department. The Department-directed audit will be waived if the fabrication plant is certified by PCI in the appropriate product category(s). However, the Contractor must provide the Department with the most current PCI plant audit when requesting a waiver of the Department audit.

5. Contractor QC requirements:
    a. The Contractor will perform 100% inspection for their process control, and the Department will perform a lower inspection frequency to ensure quality (QA inspection).
    b. Various ACI and PCI personnel certifications will be required for Contractor quality control personnel per DMS-7300, "Precast Concrete Fabrication Plants."
    c. The Contractor must define their QC staff and individuals' QC responsibilities for sampling, testing, inspection, and documentation as required by DMS-7300.
6. For project-specific fabrication plants, the Contractor will provide a fully equipped testing laboratory per DMS-7300 unless otherwise directed by the Department.
7. Internal concrete temperature will be monitored throughout curing.
8. Maximum allowable concrete temperatures during curing will be 150°F or 170°F is the Contractor uses one of the concrete mix design options, except options 6 & 7, and 8 listed in Section 421.4.A.6, "Mix Designs Options."
9. Maximum allowable temperature of fresh concrete at time of placement is 95°F.
10. Accelerated curing is defined as curing with artificial heat provided to the curing enclosure or forms.
11. Concrete temperature of at least 50°F must be maintained until detensioning of prestressed members.
12. Additional tolerances for wall panels (prestressed and nonstressed, excluding MSE wall panels).
13. Provided new rejection criteria for prestressed bridge deck panels.

Item 425, "Precast Prestressed Concrete Structural Members"

1. Changed title from "Prestressed Concrete Structural Members."
2. Extruded polystyrene is required for bedding strips when precast prestressed concrete deck panels are used.

Item 426, "Prestressing"

1. Added the requirement to provide a "grouting plan" with the submission of "working drawings."
2. Added the requirement to provide ASBI certified grouting personnel during all grouting operations.
3. Added requirements for grouting equipment.
4. Changed the requirements for post-tensioning grout to be prepackaged, thixotropic, and meeting the requirements of DMS-4670.

Item 427, "Surface Finishes For Concrete"

1. Removed "Ordinary Surface Finish" – "Ordinary Surface Finish" is included in Item 420.
2. Removed the "Class" designations from the specification.
3. Omitted concrete paint with texture (Class B – Type I) type finish.
4. Included Opaque Sealer (Stain) as a Surface Treatment.
5. Omitted Striated Finish.
6. Included Off-the-Form finish and Form Liner finish.
7. When pay item, measurement will be by the square foot.

Significant Changes 2004 Specifications

Item 428, "Concrete Surface Treatment"

1. Combined with Special Specification 4302, "Penetrating Concrete Surface Treatment".
2. Omitted Class II treatment option from previous Special Specification 4302. The Class II option prescribed the application of the penetrating surface treatment followed by a coat of No. 742 gray appearance coat.
3. Removed testing requirements for acceptance (coring and measuring depth of penetration).

Item 429, "Concrete Structure Repair"

1. Added proprietary repair materials and hydrodemolition.
2. Clarified and added additional concrete removal requirements

Item 430, "Extending Concrete Structures"

1. No significant changes.

Item 431, "Pneumatically Placed Concrete"

1. Require ACI-certified nozzlemen for the process and application (not required for soil-nail walls).
2. Maximum velocity of 100 fps for spray equipment.

Item 432, "Riprap"

1. Added Stone Riprap (Protection). This incorporates the current special specs for "Stone Protection".
2. Specified minimum reinforcement for conventional bars as #4's @ 18" in both directions.

~~**Item 433, "Joint Sealants and Fillers"**~~ Changed to DMS-6310, "Joint Sealants and Fillers".

Item 434, "Elastomeric Bridge Bearings"

1. Changed title from "Sliding Elastomeric Bearings."
2. Combined Items 434 and 435.
3. Moved waterstop requirements to Item 420.2.F
4. Changed test procedures Tex-601-J and Tex-622-J.
5. Added bridge bearings with special components (steel guide bars and bottom plate).

~~**Item 435, "Elastomeric Materials"**~~ Combined with Item 434 and some information moved to DMS-6160, "Waterstops, Nylon Reinforced Neoprene Sheet, and Elastomeric Pads".

~~**Item 437, "Concrete Admixtures"**~~ Changed to DMS-4640, "Chemical Admixtures for Concrete".

Item 438, "Cleaning and Sealing Joints and Cracks (Rigid Pavement and Bridge Decks)"

1. Changed title from "Cleaning and/or Sealing Joints and Cracks (Portland Cement Concrete)".

Item 439, "Concrete Bridge Deck Overlays"

1. Changed title from "Concrete Overlay of Structure Decks".
2. Latex-modified concrete overlay has been included in specifications.

Item 440, "Reinforcing Steel"

1. Updated ASTM references for materials. Updated DMS references.
2. Added material reference for mechanical couplers.
3. Revised minimum splice lengths to be in concurrence with current AASHTO provisions.

4. Updated epoxy coated reinforcement passages on fabrication, handling, storage, placement and repair to concur with current ASTM D3963.

Item 441, "Steel Structures"

1. Incorporated AASHTO/NSBA S2.1 as fabrication guideline.

Item 442, "Metal For Structures"

1. Bidding by structure type rather than grade of steel.
2. Most weight deductions eliminated.
3. Extra-high-strength steel for non-bridge structures deleted from spec; steel with yield strength over 65 ksi to be handled by special spec.
4. Testing at Department option.
5. Sections on steel piling, anchor bolts, and w- or thrie beam deleted; should be handled by specific Items.
6. Bronze & lead deleted; not used in recent memory.
7. Fastener weights corrected.

~~**Item 443, "Permanent Metal Deck Forms"**~~Information to be shown on standard drawing.

~~**Item 444, "Bridge Protective Assembly"**~~Information to be shown on standard drawings, Measurement and Payment per Item 442.

Item 445, "Galvanizing"

1. Added reference to Item 446 for painting of galvanized items.
2. Added zinc-cadmium solders, in keeping with ASTM A 780. [445.3.C.1.a]
3. Prohibited the use of paint for repairing galvanizing damage caused by welding. Paint is barely adequate as a repair method even for small areas of damage, and welding over galvanizing causes damage over relatively large areas. [445.3.C.1.c]
4. In keeping with ASTM A 123, added a requirement for the coating thickness of a repair made with paint to be 50% more than the specified galvanizing thickness, up to 4.0 mils. [445.3.C.3]

Item 446, "Cleaning and Painting of Steel"

1. Changed title from "Cleaning, Paint and Painting".
2. Placed requirement to have SSPC (Society of Protective Coatings) certification for painting contractors for cleaning and painting contracts under certain conditions.
3. Referenced the AASHTO/NSBA Steel Bridge Collaboration S 8.1-2001 report for shop painting.
4. Removed current System I epoxy coating and replaced it with the overcoat system.
5. Added System IV coating which includes an acrylic latex appearance top coat.
6. Included additional information related to hazardous waste and worker and environmental protection.

Item 447, "Structural Bolting"

1. Made minor corrections to hardness values for bolts/nuts/to match current ASTM's.
2. Deleted mandatory field R-C test, but made it to be "as directed".
3. Added field installation verification test to "replace" field R-C test.
4. Deleted alternate fasteners.
5. Refer to ASTM for bolt and washer sizes.
6. Permits bolt tightening using a calibrated hydraulic torque wrench or by the turn-of-the-nut method.
7. Bolt installation procedures have been updated to match AASHTO requirements.

Item 448, "Structural Field Welding"

1. Removed the reference for welder certification to Construction Bulletin C-6 and replaced it by referencing AWS D 1.5 for welder certification.

Significant Changes 2004 Specifications

Item 449, "Anchor Bolts"

1. Added an anchor bolt tightening procedure for traffic signal poles, roadway illumination poles, high mast illumination poles, and overhead sign support structures.

Item 450, "Railing"

1. No significant changes.

Item 452, "Removing Railing"

1. Referenced Item 420 for top of slab surface finish when railing is not to be replaced at that location.

Item 453, "Temporary Railing"

1. Portions of the temporary rail to be used later in the permanent installation to be galvanized throughout.
2. Paint in accordance with Item 446 may only be used when specified in the plans.

Item 454, "Bridge Expansion Joints"

1. Changed title from "Sealed Expansion Joints".
2. Removed requirement for submission of fabrication drawings.
3. Included armor joint as part of payment.
4. Added header type expansion joint.

Item 458, "Waterproofing Membranes for Structures"

1. Changed title from "Waterproofing for Structures" to differentiate this spec from epoxy waterproofing.
2. Deleted Types RR-2 and RR-3 waterproofing. The railroad companies operating in Texas no longer utilize these types of waterproofing. All the railroad companies have approved the use of the Type RR-1.
3. Added the use of EPDM membrane to the use of butyl rubber for the Type RR-1 waterproofing.

Item 459, "Gabions and Gabion Mattresses"

1. This is a new Item based on 1993 Special Specification 5014.

Item 460, "Corrugated Metal Pipe"

1. Addition of Spiral Rib pipe (Types IR and IIR) - this is a product which has become available since the last spec rewrite and is covered under AASHTO M36. This pipe has improved flow characteristics.
2. Addition of Bell & Spigot.
3. Removed provisions which disallow contact between concrete (or cement stabilized materials) and aluminum pipe (or aluminized pipe).

Item 461, "Structural Plate Structures"

1. Required the use of Class "C" concrete for footings and headwalls.

Item 462, "Concrete Box Culverts and Storm Drains"

1. Changed title from "Concrete Box Culverts and Sewers".
2. Changed ASTM C 789 and ASTM C 850 to ASTM C 1433. ASTM C 1433 is the new specification which combined C 789 & C 850 into a single specification.
3. Added 1% criteria to tolerances for precast boxes. This is consistent with ASTM C 1433.
4. Added "backfill material between box sections" to Payment.

Significant Changes 2004 Specifications

Item 464, "Reinforced Concrete Pipe"

1. Added section on Jack and Bore pipe which makes the design the contractors responsibility.
2. Changed sampling rate from 1 in 100 to 1 in 300. Added clause to require test only up to 15% over specified D-load. Added clause to allow undamaged test pipe to be used for construction.
3. Removed entire section about Reuse of Appurtenances this has nothing to do with pipe.

Item 465, "Manholes and Inlets"

1. Added the requirements that multi-project precasters, as defined in Item 424, of manholes and inlets must be approved by the Construction Division in accordance with DMS-7340, "Qualification Procedure for Multi-Project Fabrication Plants of Pre-cast Concrete Manholes and Inlets".

Item 466, "Headwalls and Wingwalls"

1. Required Class C concrete for precast and cast-in-place units.
2. Dropped references to fly ash. This is covered under Item 420.
3. Deleted reference to Item 424 for plant produced precast units.
4. Added definitions for Headwalls and Wingwalls.
5. Added Square foot as an optional measurement for Wingwalls.

Item 467, "Safety End Treatment"

1. Required class C concrete for precast and cast-in-place units.
2. Dropped references to fly ash. This is covered under Item 420.
3. Deleted reference to Item 424 for plant produced precast units.
4. The "Slope" and "Orientation" must be specified for all SETs.
5. Type I SET for box culverts will be specified by the barrel span and wall height. Wall heights will be rounded to nearest 1' for measurement and payment.
6. Riprap will not be required for precast SETs unless specified on the plans.
7. Limits of riprap to be included in the price bid for each SET will be shown on the plans.

Item 471, "Frames, Grates, Rings, and Covers"

1. Added the proof-load testing requirements of AASHTO M306 for frame, grate, ring, and cover castings.

Item 472, "Removing and Re-laying Culvert and Storm Drain Pipe"

1. Changed title from "Removing and Re-laying Culvert and Storm Sewer Pipe".
2. Removed references to Protective Coating for connecting aluminum pipe to concrete.
3. Changed the pay items to one item which eliminates differentiating between culvert pipe and storm drain pipe and between 18 inch and under and 18 inch and over.
4. Included concrete collars and reinforcing in Payment as being included in the pay item.

Item 473, "Laying Culvert and Storm Drain Pipe"

1. Changed title from "Laying Culvert and Storm Sewer Pipe".
2. Removed references to Protective Coating for connecting aluminum pipe to concrete.
3. Included concrete collars and reinforcing in Payment as being included in the pay item.

Item 474, "Slotted Drain"

1. Allowed the use of Aluminized steel (Type 2).
2. Changed terminology in specification to match with the current Slotted Drain standard.

Significant Changes 2004 Specifications

Item 476, "Jacking, Boring, or Tunneling Pipe or Box"

1. Changed title from "Jacking, Boring or Tunneling Pipe".
2. Title extended to refer to pipe or box.
3. Eliminate payment option of "Jacking or Boring Pipe." All pipe will now be paid as "Jacking, Boring, or Tunneling Pipe or Box."

Item 479, "Adjusting Manholes and Inlets"

1. No significant changes.

Item 480, "Cleaning Existing Culverts"

1. No significant changes.

Item 481, "PVC Pipe for Bridge Drains"

1. No significant changes.

Item 483, "Scarifying Concrete Bridge Slab"

~~**Item 485, "Wet Sandblasting"**~~ Combined with Item 439.

Item 490, "Timber Structures"

1. No significant changes. Existing specification was simplified and updated to conform to current usage.

Item 491, "Timber for Structures"

1. No significant changes. Existing specification was simplified and updated to conform to current usage.

Item 492, "Timber Preservative and Treatment"

1. No significant changes. Existing specification was simplified and updated to conform to current usage.

Item 495, "Raising Existing Structures"

1. Revised the calculation procedures for determining jack and shoring capacity to conform to AASHTO Bridge Code.
2. Provided criteria for traffic to be carried on temporary supports while structure is being raised.
3. Clarified limits on lifting spans at bents based on type of construction (simple span, continuous span, continuous slab with simple span beams).

Item 496, "Removing Structures"

1. Changed title from "Removing Old Structures".
2. Must specify types of items to be removed.

Item 497, "Sale of Salvageable Material"

1. Changed title from "Disposal of Salvageable Material."

~~**Item 498, "Plant Inspection Laboratory (Equipped)"**~~Combined with Item 504.

Item 499, "Adjusting Steel Shoes

1. This is a new item based on SS 4007.

Significant Changes 2004 Specifications

500 ITEMS, MISCELLANEOUS CONSTRUCTION

Item 500, "Mobilization"

Item 502, "Barricades, Signs and Traffic Handling"

Item 504, "Field Office and Laboratory"

1. Changed title from "Facilities for Field Office and Laboratory."
2. Added requirements for licensed electrician as indicated in Metric Special Provision 008-113 and English Special Provision 008-202.
3. Added requirements for phone, copier, facsimile, and computer equipment. Phone is required by default. A copier, facsimile, and computer equipment is required when shown on the plans and is to be in accordance with DMS 10101,

Item 506 "Temporary Erosion, Sedimentation, and Environmental Controls"

1. New specification, the combination of previous special specifications (5004, 5005, 5006, 5007, 5008, 5010, 5012, 5013, and 5014).
2. Changes made to "Payment" to maintain, remove, and replace devices.

Item 508, "Constructing Detours"

1. Includes "maintenance" in accordance with Items 4 & 7

Item 510, "One-Way Traffic Control"

1. Require the contractor to furnish certified flaggers, in accordance with the requirements of Item 502, "Barricades, Signs and Traffic Handling".

Item 512, "Portable Concrete Traffic Barrier"

1. Includes "Qualification Procedure (DMS-7350)" for multi-project precasters
2. Includes fabrication tolerances
3. Change to bid item descriptions.

Item 514, "Permanent Concrete Traffic Barrier"

1. Includes "Qualification Procedure (DMS-7350)" for multi-project precasters
2. Includes fabrication tolerances
3. Change to bid item descriptions.

Item 520, "Weighing and Measuring Equipment"

1. Removed the reference to the National Institute of Standards and Technology Handbook 112, as this document could not be found and all references needed are contained in Handbook 44.
2. Modified to cover strictly weighing and measuring equipment. These are the scales and meters that register the weights and volumes of materials.
3. Removed all references to concrete batching equipment, as this will be handled in concrete items.
4. Removed all the references to hot mix plant equipment, as this will be handled in Item 320.
5. Added requirement for greater accuracy of asphaltic materials meter if it is used for payment purposes.
6. Added section for particulate and slurry meters to address dry lime, mineral filler, and lime slurry.

~~**Item 522, "Portland Cement Concrete Plants**~~" Moved to Item 421 and references National Ready Mix Concrete Association and other requirements.

Significant Changes 2004 Specifications

~~**Item 524, "Hydraulic Cement"**~~ Moved to DMS 4600.

~~**Item 526, "Membrane Curing"**~~ Moved to DMS 4650.

Item 528, "Color-Textured Concrete and Landscape Pavers"

1. New specification incorporating Special Specification 5019, 5788, and 5559.
2. Measurement for concrete and pavers are both by the square yard.
3. Payment for concrete includes preparation of the subgrade and base. Base is paid for under a separate Item unless otherwise shown on the plans.
4. Payment for pavers includes base.

Item 529, "Concrete Curb, Gutter and Combined Curb and Gutter"

1. No significant changes.

Item 530, "Intersections, Driveways, and Turnouts"

1. Changed title from "Driveways and Turnouts."
2. Added definitions for each.
3. Added new measurement and payment requirements.

Item 531, "Sidewalks"

1. Includes "Pedestrian Ramps"

~~**Item 532, "Concrete Erosion Retards"**~~ Deleted.

Item 533, "Shoulder Texturing"

1. New specification includes all items contained in Special Specifications 5404, 5405, and 5406.
2. Measures by the 100-ft. station.

~~**Item 534, "Structure Approach Slabs"**~~ Included and to be paid for in Item 420.

Item 536, "Concrete Medians and Directional Islands"

1. No significant changes.

Item 538, "Right of Way Markers"

1. Deleted precast option.
2. TxDOT will place the right-of-way location punch marks.

Item 540, "Metal Beam Guard Fence"

1. Includes "Replacement" & "Adjustment"
2. Includes "Transitions".
3. Incorporated materials requirements into Department Materials Specifications (DMS).
4. Added rectangular wood posts as an option with the existing round wood posts and the steel posts.
5. Allows for composite blocks.
6. Added existing special provision requirement for permanently marked curved rail elements with the radius dimension.
7. Added a measurement and payment item for Metal Beam Guard Fence Transitions.
8. Includes requirements for curbs.

Item 542, "Removing Metal Beam Guard Fence"

1. No significant changes.

Item 544, "Guardrail End Treatments"

1. New specification, allows for a generic specification description with the actual end treatment designated by the details shown in the plans.

2. Allows for materials to be furnished by both the Contractor and by the Department.

Item 545 "Crash Cushion Attenuators"

1. New specification, allows for a generic specification description with the actual attenuators designated by the details shown in the plans.
2. Allows for materials to be furnished by both the Contractor and by the Department.

Item 550, "Chain Link Fence"

1. Deletes references to C-section line posts, square sections for terminal and gate posts, and H-beam sections for posts.
2. Includes material requirements for PVC coating.
3. Bid Items cover Install, Repair, and Remove

Item 552, "Wire Fence"

1. Deleted reference to mesquite posts.
2. Removal will be subsidiary.
3. Added grading and clearing requirements as subsidiary.

Item 556, "Pipe Underdrains"

1. Included requirements of Special Provision for Table 2.
2. Added riprap option.
3. Included trench protection information

Item 560, "Mailbox Assemblies"

1. No significant changes.

~~**Item 575, "Epoxy"**~~ Moved to DMS 6100 previously.

~~**Item 580, "Project Maintenance"**~~ Deleted

Item 585, "Ride Quality for Pavement Surfaces"

1. This Item is similar to the current Special Specification 5880, with the following changes.
2. The penalty for localized roughness is $500, $250, and $0 for schedules 1, 2 and 3 respectively.
3. The bonuses for schedule 3 were cut in half form SS 5880.
4. Diamond grinding is required to remove localized roughness.
5. Areas may be designated as "leave out" sections when shown on the plans.
6. Surface test Type B is required on bridges and approach slabs overlaid as part of the project.
7. Verification testing wording was changed to allow the Engineer more latitude in resolving test differences.
8. The bump requirement no longer includes a waiver clause.

600 ITEMS, LIGHTING, SIGNING, MARKINGS, AND SIGNALS

Item 610, "Roadway Illumination Assemblies"

1. Added requirements for the removal of existing roadway illumination assemblies (old Item 611) and the relocation of existing roadway illumination assemblies (old Item 612).
2. Material requirements have been moved to DMS 11010 "Roadway Illumination Light Fixtures."
3. Moved payment for the foundations to Item 416.
4. Removed shop drawing requirements.

5. The Department will pay for electrical energy consumed by the lighting system.

~~**Item 611, "Removing Roadway Illumination Assemblies"**~~ Combined with Item 610.

~~**Item 612, "Relocating Roadway Illumination Assemblies"**~~ Combined with Item 610.

Item 613, "High Mast Illumination Poles"

1. Anchor bolt tightening procedures are referenced to Item 449.

Item 614, "High Mast Illumination Assemblies"

1. Material requirements have been moved to DMS 11020 "High Mast Light Fixtures" and 11021 "High Mast Assembly Kits."
2. The Department will pay for electrical energy consumed by the lighting system.

Item 616, "Performance Testing of Lighting Systems"

1. Contractor responsible for maintenance of lighting system until acceptance of the project.
2. The Department will pay for electrical energy consumed by the lighting system.

Item 617, "Temporary Roadway Illumination"

1. New Item created from existing special specification.
2. Changed payment from lump sum to by each fixture or by each month maintained and operated.
3. Added force account for power line extensions.
4. Payment for electrical services and energy consumed is subsidiary to this Item.

Item 618, "Conduit"

1. Material requirements have been moved to DMS 11030 "Conduit."
2. Specification allows for the use of HDPE. This is consistent with the ED standard sheets.
3. Requires the use of a plastic tape material to be placed in the trench above the conduit to protect it from others digging.

Item 620, "Electrical Conductors"

1. Material requirements have been moved to DMS 11040 "Electrical Conductors."

Item 621, "Tray Cable"

1. New Item created from existing special specification "Tray Cable" (old Item 8415).
2. Material requirements have been moved to DMS 11050 "Tray Cable."

Item 622, "Duct Cable"

1. Material requirements have been moved to DMS 11060 "Duct Cable."

Item 624, "Ground Boxes"

1. Material requirements have been moved to DMS 11070 "Ground Boxes."

Item 625, "Zinc-Coated Steel Wire Strand"

1. No significant changes made.

Item 627, "Treated Timber Poles"

1. No significant changes made.

Item 628, "Electrical Services"

1. Material requirements have been moved to DMS 11080 "Electrical Services."

Significant Changes 2004 Specifications

~~**Item 629, "Removing Service Poles"**~~ Combined with Item 628.

Item 634, "Plywood Signs"

1. Changed title from "Plywood Signs (Type A)."
2. Added requirements for replacing existing signs and refurbishing existing signs (old Item 648).
3. Removed working drawing submittal requirements.
4. Signs larger than 60in. by 60in. may be stored outside.
5. Salvage or dispose of surplus material in accordance with the plans or as directed.
6. Changed measurement of sign replacement to square foot.

Item 636, "Aluminum Signs"

1. Changed title from "Aluminum Signs (Type A)."
2. Combined Aluminum Signs (Type G) and (Type O) into this specification. [1993 specifications, Items 637 and 642]
3. Added requirements for replacing existing signs and refurbishing existing signs (1993 specification, Item 648).
4. Removed reflectorized removable legend.
5. Removed non-reflective background material.
6. Removed working drawing submittal requirements.
7. Added colored transparent film.
8. Signs larger than 60in. by 60in. may be stored outside.
9. Salvage or dispose of surplus material in accordance with the plans or as directed.
10. Changed measurement of sign replacement to square foot.

~~**Item 637, "Aluminum Signs (Type G)"**~~ Combined with Item 636.

~~**Item 639, "Revising Guide Sign Messages"**~~ Combined with Items 634 and 636.

~~**Item 642, "Aluminum Signs (Type O)"**~~ Combined with Item 636.

Item 643, "Sign Identification Decals"

1. Moved material requirements to DMS 8315 "Sign Identification Decals" and added a new test method for sampling finished decals.

Item 644, "Small Roadside Sign Supports and Assemblies"

1. Added requirements for the removal of existing small roadside sign supports and the relocation of existing small roadside sign supports (old Item 649).
2. Require drivable sign supports to be set in concrete unless otherwise shown on the plans.

~~**Item 646, "Small Roadside Sign Supports"**~~ Combined with Item 644.

Item 647, "Large Roadside Sign Supports and Assemblies"

1. Changed title from "Large Roadside Sign Assemblies".
2. Added requirements for the removal of existing large roadside sign supports and the relocation of existing large roadside sign supports (1993 Specification, Item 649).
3. Moved payment for the foundations to Item 416.

~~**Item 648, "Replacing or Refurbishing Roadside Signs"**~~ Combined with Items 634 and 636.

~~**Item 649, "Removing or Relocating Roadside Sign Assemblies"**~~ Combined with Items 644 and 647.

Significant Changes 2004 Specifications

Item 650, "Overhead Sign Supports"

1. Added requirements for the removal of overhead sign supports (old Item 651) or relocation of overhead sign supports.
2. Added requirements for alternate designs for cantilever structures.

~~**Item 651, "Removing Overhead Sign Supports"**~~ Combined with Item 650.

Item 652, "Highway Sign Lighting Fixtures"

1. Material requirements have been moved to DMS 11090 "Highway Sign Lighting Fixtures."
2. Added requirements for the removal of highway sign lighting fixtures (old Item 6016).
3. The Department will pay for electrical energy consumed by the lighting system.

Item 654, "Sign Walkways"

1. Handrails required for all sign walkways.
2. Added requirements for the removal of sign walkways.

Item 656, "Foundations for Traffic Control Devices"

1. Changed title from "Foundations for Signs, Traffic Signals and Roadway Illumination Assemblies".
2. Made this a non-pay item.
3. Moved payment for the foundations of Items 610, 647 & 686 to Item 416.
4. Made foundations for traffic controller foundations subsidiary to Item 680 as opposed to paying for them under this item.
5. Made foundations for roadside flashing beacon foundations subsidiary to Item 685 as opposed to paying for them under this item.
6. Made foundations for pedestal pole foundations subsidiary to Item 687 as opposed to paying for them under this item.
7. Lowered cure time for traffic signal controller foundations and small roadside sign foundations from 7 days to 4 days.

Item 658, "Delineator and Object Marker Assemblies"

1. Added requirements for the removal of delineators and object markers (1993 specifications , Item 659).
2. Removal is subsidiary unless otherwise shown in the plans.
3. Added requirements for wing channel posts (1993 specifications, Item 660).
4. Departmental Materials Specification will be revised.

~~**Item 659, "Removing Delineator and Object Marker Assemblies"**~~ Combined with Item 658.

~~**Item 660, "Wing Channel Posts"**~~ Combined with Item 658.

Item 662, "Work Zone Pavement Markings"

1. Guidemarks has been changed to short-term markings.
2. Added minimum thickness.
3. Work-zone pavement markings (Type II, paint and beads) used as a sealer for Type I pavement markings (thermoplastic) will be paid for under Item 662.

Item 666, "Reflectorized Pavement Markings"

1. Made "Pavement Sealer" a pay item which can either be a Type II marking or an acrylic or epoxy sealer.
2. Changed minimum thickness of Type I markings to:
   - 0.100 inches (100 mil) for new surface treatments involving Item 316, "Surface Treatments" or Item 318, "Hot Asphalt-Rubber Surface Treatments",
   - 0.060 inches (60 mil) for retraced pavement markings
   - 0.090 in. (90 mils) for all other Type I markings.

3. Added new surface preparation requirements.
4. Work-zone pavement markings (Type II, paint and beads) used as a sealer for Type I pavement markings (thermoplastic) will be paid for under Item 662.
5. Retroreflectivity requirements will be required by special provision only.

Item 668, "Prefabricated Pavement Markings"

1. No significant changes.

Item 672, "Raised Pavement Markers"

1. Place raised pavement markers on the new asphaltic concrete surface or surface treatment only after the new surface has aged at least 14 days.
2. Changed Class A, B, C, D & E to Jiggle Bar Tile, Reflectorized Pavement Markers, Traffic Buttons and Plowable Reflectorized Pavement Markers.

Item 677, "Eliminating Existing Pavement Markings and Markers"

1. Removal of raised pavement markers is subsidiary to pertinent bid items.
2. Clarified methods.

Item 678, "Pavement Surface Preparation for Markings"

1. No significant changes.

Item 680, "Installation of Highway Traffic Signals"

1. Material requirements for Traffic Signal Controller Assembly have been moved to DMS 11170 "Traffic Signal Controller Assembly."
2. Material requirements for Flasher Controller Assembly have been moved to DMS 11160 "Flasher Controller Assembly."
3. Foundations for traffic signal controllers are subsidiary to this Item.
4. The Department will pay for electrical energy consumed by the lighting system.
5. Contractor responsible for maintenance of signal system until acceptance of the project.

Item 681, "Temporary Traffic Signals"

1. Changed title from "Temporary Traffic Signals for Construction".

Item 682, "Vehicle and Pedestrian Signal Heads"

1. Material requirements have been moved to DMS 11120 "Vehicle Signal Heads" and 11130 "Pedestrian Signal Heads."
2. Added LED Traffic Signal Lamp Unit (old Item 1201).
3. Added LED Pedestrian Signal Lamp Unit (Symbolic) (old Item 8230).

Item 684, "Traffic Signal Cables"

1. Material requirements have been moved to DMS 11110 "Traffic Signal Cables."

Item 685, "Roadside Flashing Beacon Assemblies"

1. New Item created from existing special specification "Roadside Flashing Beacon Assemblies" (old Item 6007).
2. Added requirements for the removal of existing roadside flashing beacon assemblies and the relocation of existing roadside flashing beacon assemblies.
3. Material requirements for Flasher Controller Assembly have been moved to DMS 11160 "Flasher Controller Assembly."
4. Material requirements for Solar Powered Flasher Controller Assembly have been moved to DMS 11150 "Solar Power Flasher Controller Assembly."
5. Material requirements for Transformer Base have been moved to DMS 11140 "Pedestal Pole Base."
6. Foundations for roadside flashing beacon assembly are subsidiary to this Item.
7. The Department will pay for electrical energy consumed by the lighting system.

Item 686, "Traffic Signal Pole Assemblies (Steel)"

1. Material requirements have been removed.
2. Alternate designs are not acceptable.
3. Moved payment for the foundations to Item 416.

Item 687, "Pedestal Pole Assemblies"

1. New Item created from existing special specification "Pedestal Pole Assemblies" (old Items 6008 & 8524).
2. Material requirements for Transformer Base have been moved to DMS 11140 "Pedestal Pole Base."
3. Foundations for pedestal pole assemblies are subsidiary to this Item.

Item 688, "Pedestrian Detectors and Vehicle Loop Detectors"

1. Changed title from "Traffic Signal Detectors".
2. Added reference to DMS-6340, "Vehicle Loop Wire Sealant."

Item 690, "Maintenance of Traffic Signals"

1. New Item created from existing special specifications "Repair and/or Modify Signal Equipment," Preventive Maintenance of Signal Equipment," "Upgrade and/or Installation of Highway Traffic Signals," and "Traffic Signals" (old Items 7216, 7174, 7106, 7011).

700 ITEMS, MAINTENANCE

These items were not included in the 1993 Standard Specifications.

Item 700, "Pothole Repair"

1. Revised 1995 Item 700, "Pothole Repair".

Item 712, "Cleaning and Sealing Joints and Cracks (Asphalt Concrete)"

1. Replaces 1993 Item 352, "Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)".

Item 720, "Repair of Spalling in Concrete Pavement"

1. New Specification

Item 730, "Roadside Mowing"

1. Replaces 1995 Item 706, "Mowing Highway Right of Way"
2. Strip mowing width standardized.
3. Transition ratio between strip mow width and full width standardized.
4. New Standard Drawings developed that illustrate strip-mowing requirements in medians, intersections, curves, cultivated fields, houses, etc. The strip and transition standards will be shown.

Item 734, "Litter Removal"

1. Replaces 1995 Item 712, "Litter Pickup and Disposal".
2. Changed name.
3. Added spot litter removal. Paid by the acre with a minimum of 3 acres paid per call out.

Item 735, "Debris Removal"

1. New Specification

Significant Changes 2004 Specifications

Item 738, "Cleaning and Sweeping Highways"

1. Replaces 1995 Item 718, "Cleaning and Sweeping Highways".
2. New Standard Drawings will be developed that illustrate the different types of sweeping.

Item 740, "Graffiti Removal and Anti-Graffiti Coating"

1. New specification.

Item 745, "Picnic and Rest Area Maintenance"

1. Combines 1995 Item 724, "Picnic Areas" and 1995 Item 730, "Rest Areas".

Item 751, "Landscape Maintenance"

1. 1993 Item 193, "Landscape Maintenance" changed to "Landscape Establishment"; therefore, Item 751 is a new specification for "Landscape Maintenance."
2. Removed from Item 193: "Restaking, Reguying, and Rebracing of Plants;" "Removing Staking, Guying, and Bracing Materials;" "Plant Maintenance;" and "Plant Replacement."
3. Added as pay items: "Mowing, Trimming, and Edging;" "Litter Pickup;" "Pruning;" "Plant Bed Maintenance;" "Mulching and Reshaping of Plant Beds;" "Herbicide Application;" and "Fertilizer Application."

Item 752, "Tree and Brush Removal"

1. Replaces 1995 Item 736, "Trees, Underbrush and Shrubs."
2. Shrub trimming is included in tree trimming.
3. Tree trimming and underbrush removal lost the option of being paid by the lump sum.
4. Limits for measurement will be as shown on the plans.

Item 760, "Cleaning and Reshaping Ditches"

1. New specification.
2. There was much discussion on the committee about a proposed combination of Item 158, "Special Excavation", with this item. It was decided by consensus to keep them separate.

Item 764, "Pump Station and Drainage System Cleaning"

1. Replaces 1995 Item 742, "Storm Sewer System Cleaning."
   Added pay items for: Basket and Inlet Pipe, Downspout and Slotted Drain.

Item 770, "Guard Fence Repair"

1. Replaces 1995 Item 748, "Metal Beam Guard Fence Repair."
2. Contractor to supply all materials, unless otherwise shown on the plans. Therefore added information on materials.
3. Added to measurement: Thrie-Beam, Thrie-Beam Transition to W-Beam, realign posts, remove guardrail end treatment and replace with SGT, replace single guardrail terminal impact head, replace single guardrail terminal rail, replace single guardrail terminal post, and replacing steel blockouts with wood blockouts.
4. Deleted from measurement: repair headlight barrier fencing, remove and replace and/or place barrels, bridge end connection upgrade, remove undamaged guardrail, and repair guardrail extruder terminal system.

Item 772, "Post and Cable Fence"

1. Replaces 1995 Item 760, "Post and Cable Fence."
   The responsibility of Standard Drawing will be moved from DES to MNT.

Item 774, "Attenuator Repair"

1. Replaces SS 7202, "End Terminal and Attenuator Repair"

Significant Changes 2004 Specifications

Item 776, "Metal Rail Repair"

1. New Specification.
2. Item does not reference bridge rail. It may be used for repair of any metal traffic rail.
3. Concrete repair is not in this Item. Utilize Item 429, "Concrete Structure Repair."
4. Contractor shall furnish materials, unless otherwise shown on the plans.

Item 780, "Epoxy Injection"

1. New Specification.

Item 784, "Repairing Steel Bridge Members"

1. Replaces 1995 Item 754, "Steel Bridge Member Repair."
2. Added information on Materials: epoxy, grout, replacement steel, paint.
3. Added under Work Requirements for the Contractor to submit a repair plan and obtain approval before beginning work.
4. Used AASHTO/NSBA Steel Bridge Collaboration s 2.1 –2002, Steel Bridge Fabrication Guide Specification May 2002 for information on straightening tolerances and maximum temperature limits for heat application.
5. Removed the ability to use mechanical force to straighten.
6. Under Measurement added measurement by each repaired member.

Item 788, "Concrete Beam Repair"

1. Replaces SS 4421, "Repair of Impact Damaged Prestressed Concrete Bridge Beams".
2. Contractor is to submit a schedule of repair materials for approval.
3. Concrete will have the maximum slump of 3 in.
4. Use mortar in accordance with Item 421, "Hydraulic Cement Concrete."
5. Trail batches of the concrete and crack injection material may be required to ensure their ability to perform satisfactorily.
6. Defined the use of concrete for repair areas equal to or greater than 1 in. deep and use of mortar to repair areas less than 1 in. deep.
7. Added under measurement for Contractor's information, surface repair areas may be shown by the square foot and crack injection lengths may be shown by the foot.